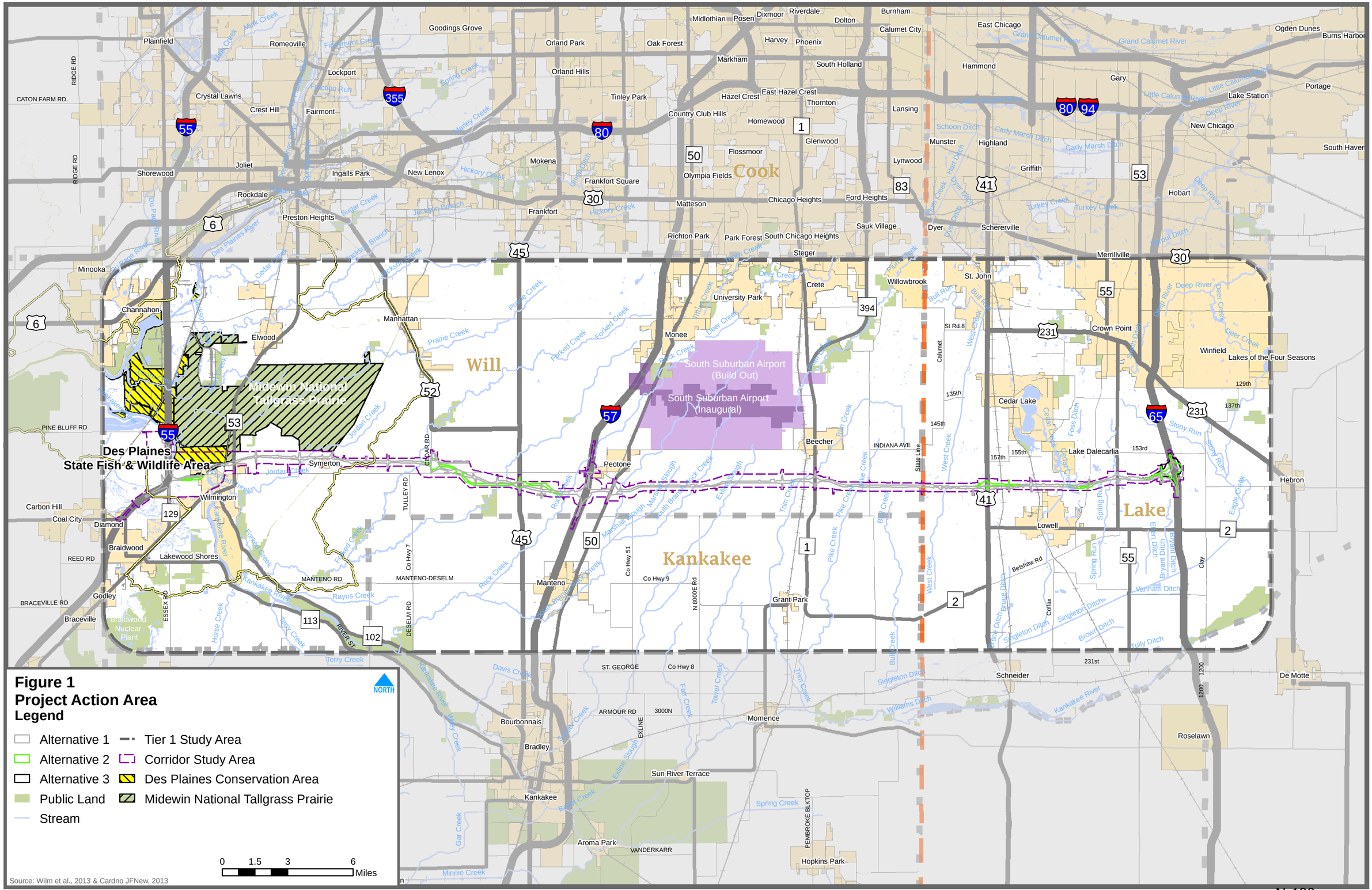

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Prairie Creek

Des Plaines
State Fish & Wildlife Area

Kankakee River

55

53

129

Wilmington

Braidwood

Jordan Creek

Forked Creek

Figure 2
Action Area for Sheepnose Mussel
Legend

NORTH

- Alternative 1
- Alternative 2
- Alternative 3
- Public Land
- Stream
- Tier 1 Study Area
- Corridor Study Area
- Des Plaines Conservation Area
- Midewin National Tallgrass Prairie
- Sheepnose Mussel Action Area
- Des Plaines Dolomite Prairies Land and Water Reserve

0 0.2 0.4 0.8 Miles

Source: Wilm et al., 2013 & Cardno JFNew, 2013

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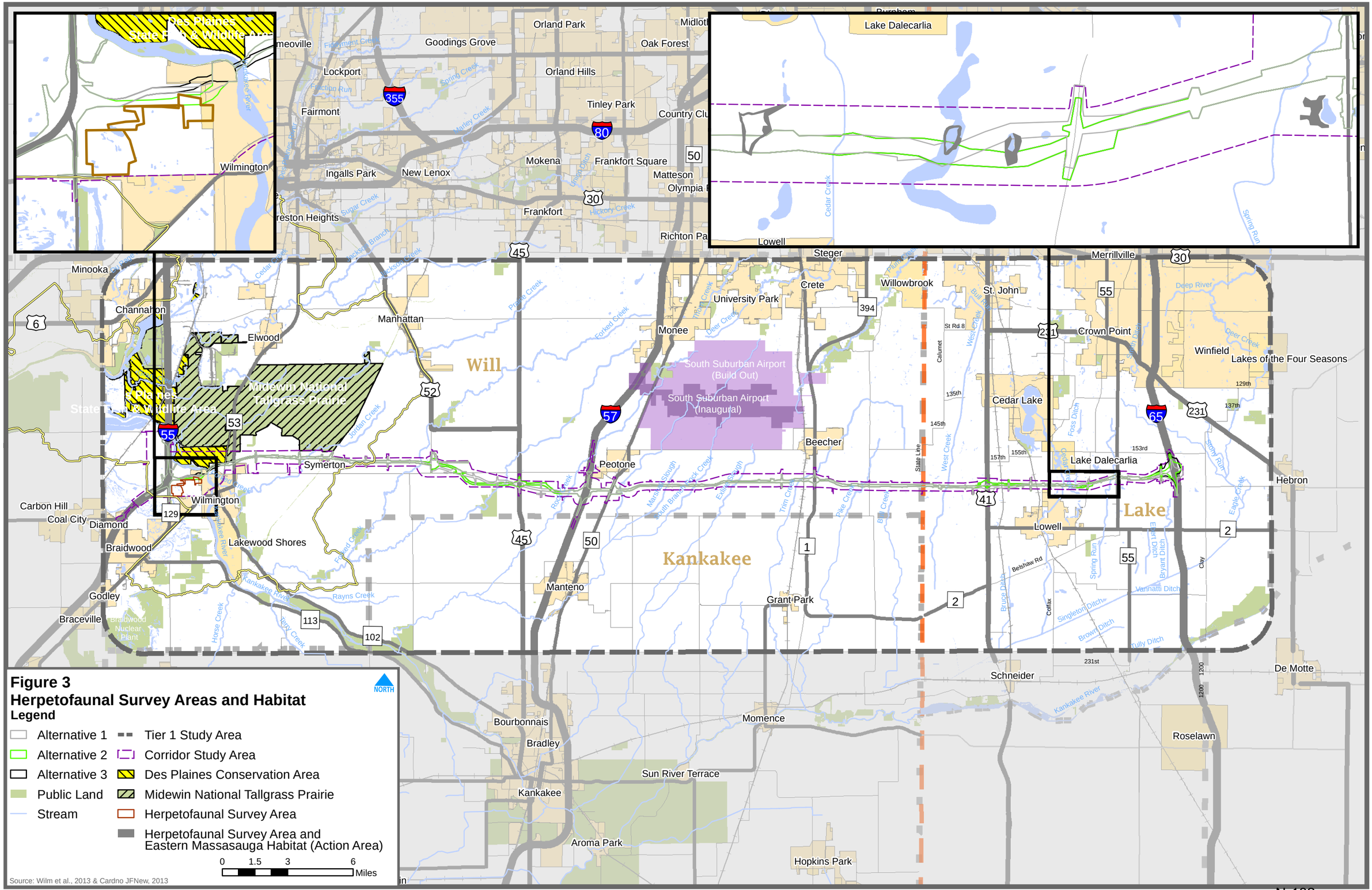

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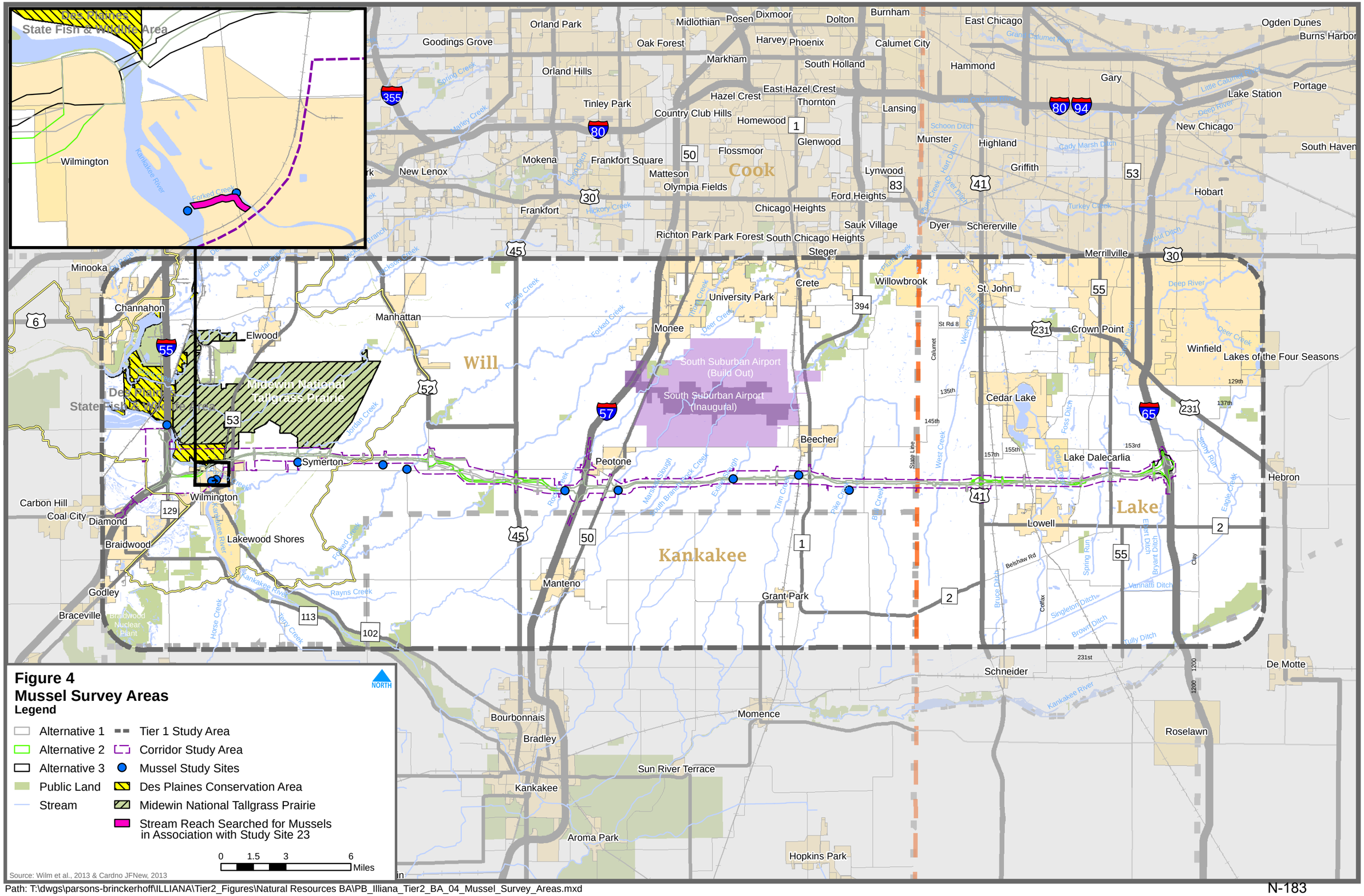

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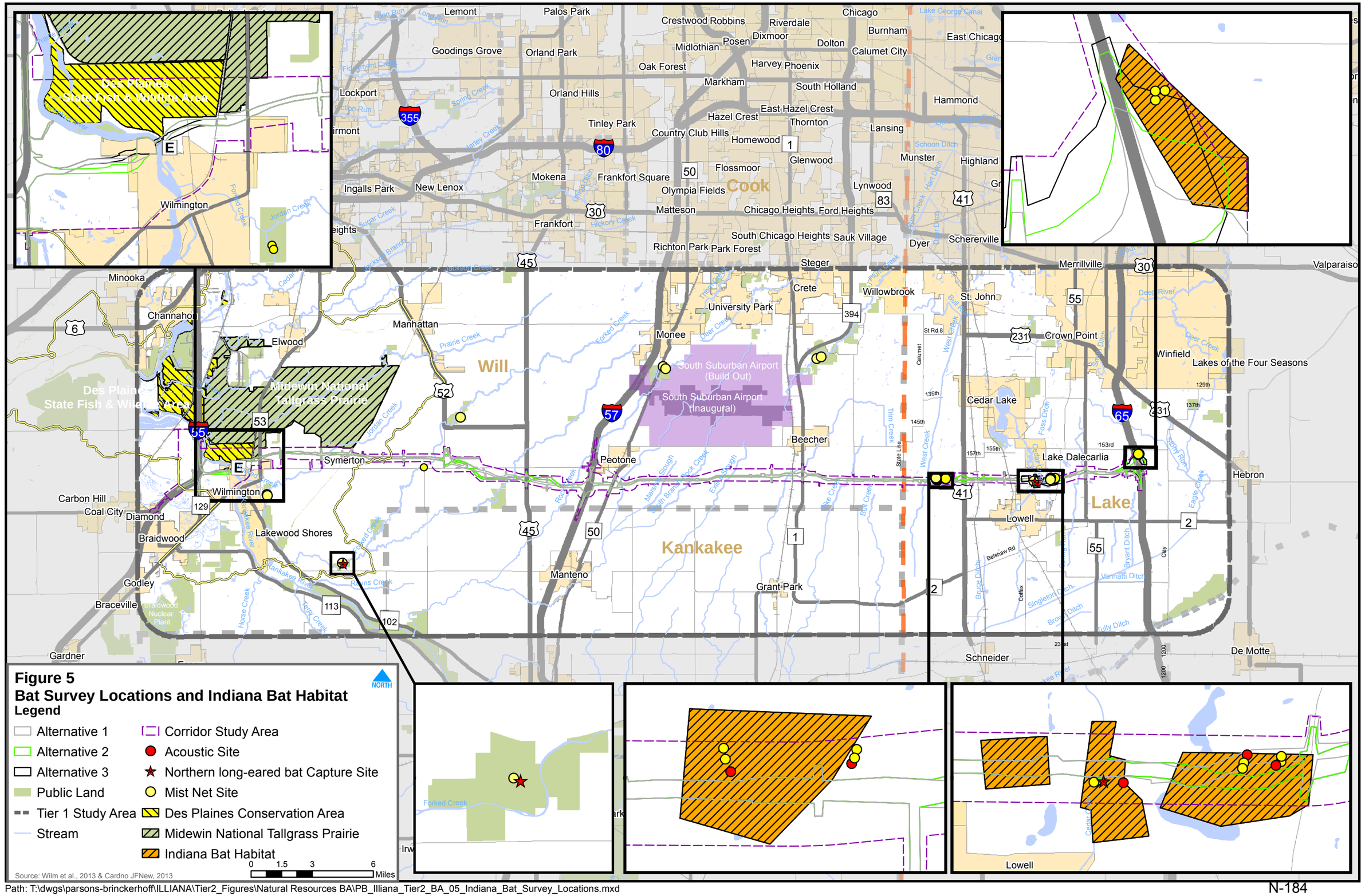

Figure 5
Bat Survey Locations and Indiana Bat Habitat
Legend

- Alternative 1
- Alternative 2
- Alternative 3
- Public Land
- Tier 1 Study Area
- Stream
- Corridor Study Area
- Acoustic Site
- Northern long-eared bat Capture Site
- Mist Net Site
- Des Plaines Conservation Area
- Midewin National Tallgrass Prairie
- Indiana Bat Habitat

NORTH

0 1.5 3 6 Miles

Source: Wilm et al., 2013 & Cardno JFNew, 2013

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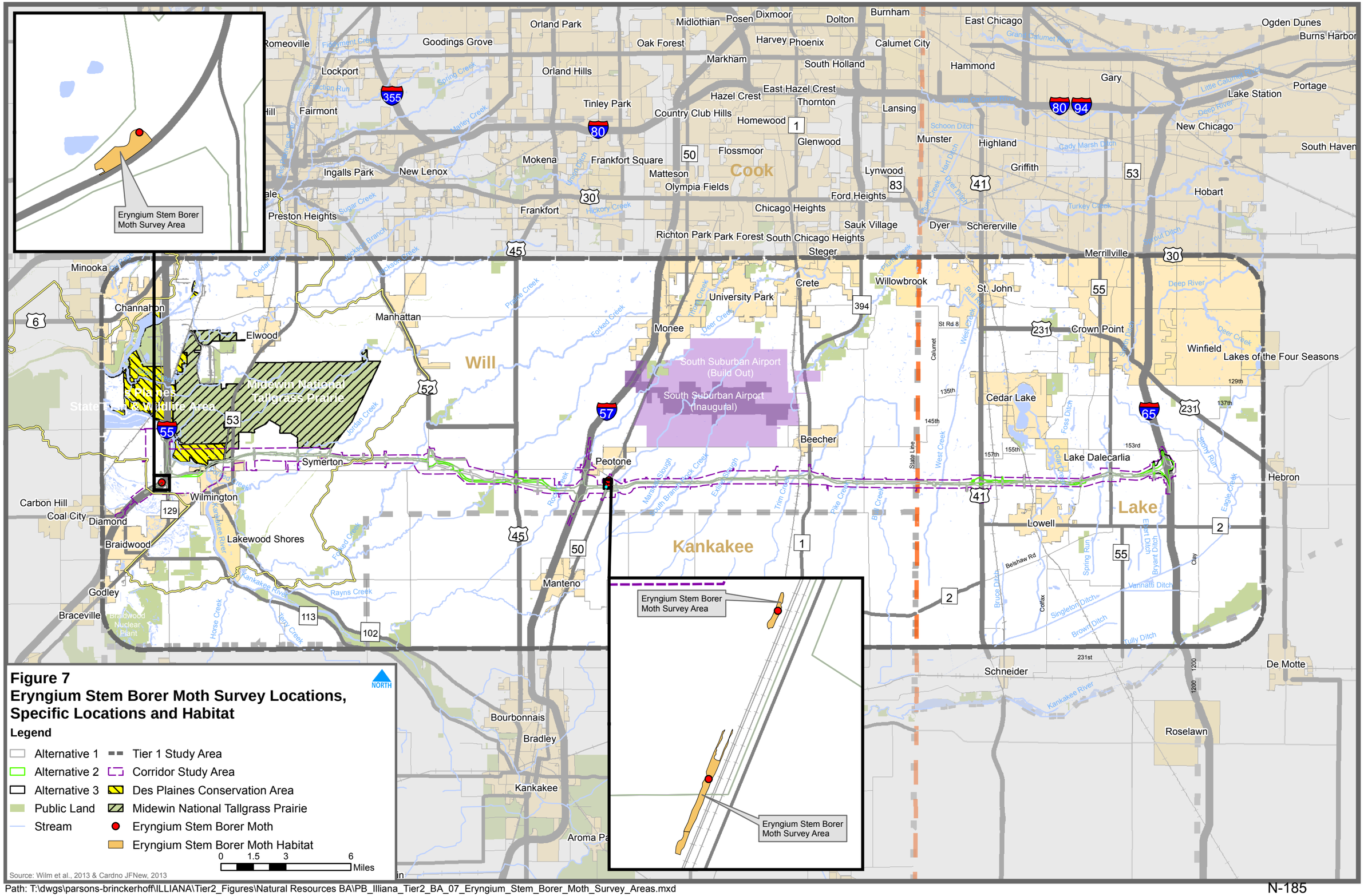

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ILLINOIS NATURAL HISTORY SURVEY
PRAIRIE RESEARCH INSTITUTE

A LIMITED ASSESSMENT OF THE UNIONID MUSSEL FAUNA ASSOCIATED WITH STREAMS IN THE IDOT ILLIANA EXPRESSWAY PROJECT CORRIDOR IN WILL COUNTY, ILLINOIS

Report prepared by
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Illinois Natural History Survey

For

Illinois Department of Transportation
Bureau of Design and Environment
2300 South Dirksen Parkway
Springfield, IL 62764

IDOT Job No.: P-91-749-10 (Seq. Nos.: 16651A and 16651B)

INHS Job No.: FS-567

INHS/IDOT STATEWIDE BIOLOGICAL SURVEY & ASSESSMENT
PROGRAM REPORT 2013(15)

April 2013

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1816 South Oak Street
Champaign, IL 61820
217-333-683

INTRODUCTION

This report is submitted in response to a Further Studies Transmittal (IDOT Job No.: P-91-749 10, Sequence No.: 16651A) from Susan Hargrove (Illinois Department of Transportation, Springfield – IDOT) to Joe Merritt (Illinois Natural History Survey, Champaign – INHS), dated 20 March 2012, requesting surveys for aquatic resources (fishes, mussels, habitat assessments, other aquatic macroinvertebrates, and water quality monitoring) be conducted in streams associated with / crossed by the proposed Illiana Expressway Project Corridor in Will, Kankakee, Grundy, and Kendall counties in Illinois. On March 8, 2013, we were tasked with an addendum for this project – as Addendum B, Sequence 16651B. We overlaid the expanded areas delineated in Sequence 16651B on the map with the project corridor delineated in the previously tasked Sequence 16651A, but no new sites were identified in the Addendum B area that would require surveys for aquatic resources. This report covers the areas delineated in Sequence 16651A (shaded lavender in **Figures 1–5**) and in Addendum B, Sequence 16651B (shaded light blue in **Figures 1–5**).

This report summarizes the results of our surveys for freshwater mussels; as requested by Charles Perino (IDOT), reports summarizing results from habitat assessments, surveys for fishes and aquatic macroinvertebrates, and water quality monitoring will be submitted separately.

STUDY AREA

Although this project corridor (inclusive of the areas delineated in the original tasking and the Addendum B tasking) extends from its eastern terminus at Interstate 65 located SSE of Cedar Point in Lake County, Indiana, west into Illinois, terminating at Interstate 55 (I-55) west of Wilmington in Will County (a straight-line distance of ~44 miles), we were tasked to focus only on the project corridor within Illinois (a straight-line distance of ~34 miles) (**Figures 1–5**). All streams crossed by the proposed corridor in the state – from the Indiana / Illinois state line west to Interstate 55 are located in Will County.

Drainage Basins. The project corridor crosses several streams in the Kankakee River basin: Pike Creek, Trim Creek, Exline Slough/Baker Creek, South Branch Rock Creek, Black Walnut Creek, North Branch Rock Creek, South Branch Forked Creek, Forked Creek proper, Jordan Creek, the Kankakee River, and several unnamed tributaries; all drain into the Kankakee River.

Table 1 presents specific locality information and habitat characterizations for each stream site discussed in this report. The general location of each stream site is designated on the map in **Figures 1–5**. Photographs of each stream site discussed in this report are included in **Appendix 1**. Latitude and longitude coordinates recorded in the field using a hand held GPS unit, and other site-specific locality information (distance/direction from nearest town, proximity to county and state roads adjacent to sites, elevation {feet above mean sea level}) were verified against U.S. Geological Survey (USGS) topographic quadrangle maps and information available using the on-line mapping resource, ACME Mapper 2.0 (http://mapper.acme.com/).

Based upon project tasking requirements, the results of habitat assessment scores and stream characterizations completed at 22 sites in March and April, the probability of becoming intermittent during the 2012 field season, and/or a site's proximity to proposed project alignment, eleven sites (ILINX-3, -4, -5, -8, -9, -14, -15, -16, -18, -19, -21) were chosen for further study and eleven (ILINX-1, -2, -6, -7, -10, -11, -12, -13, -17, -20) were eliminated. Sites ILINX-18, -19, and -21 were later eliminated from surveys for freshwater mussels because the stream was either devoid of water or a more suitable location for mussels was selected. Three supplementary sites (ILINX-23, -24, and -25) were surveyed for freshwater mussels by INHS personnel based on historical data for mussels in the streams in question.

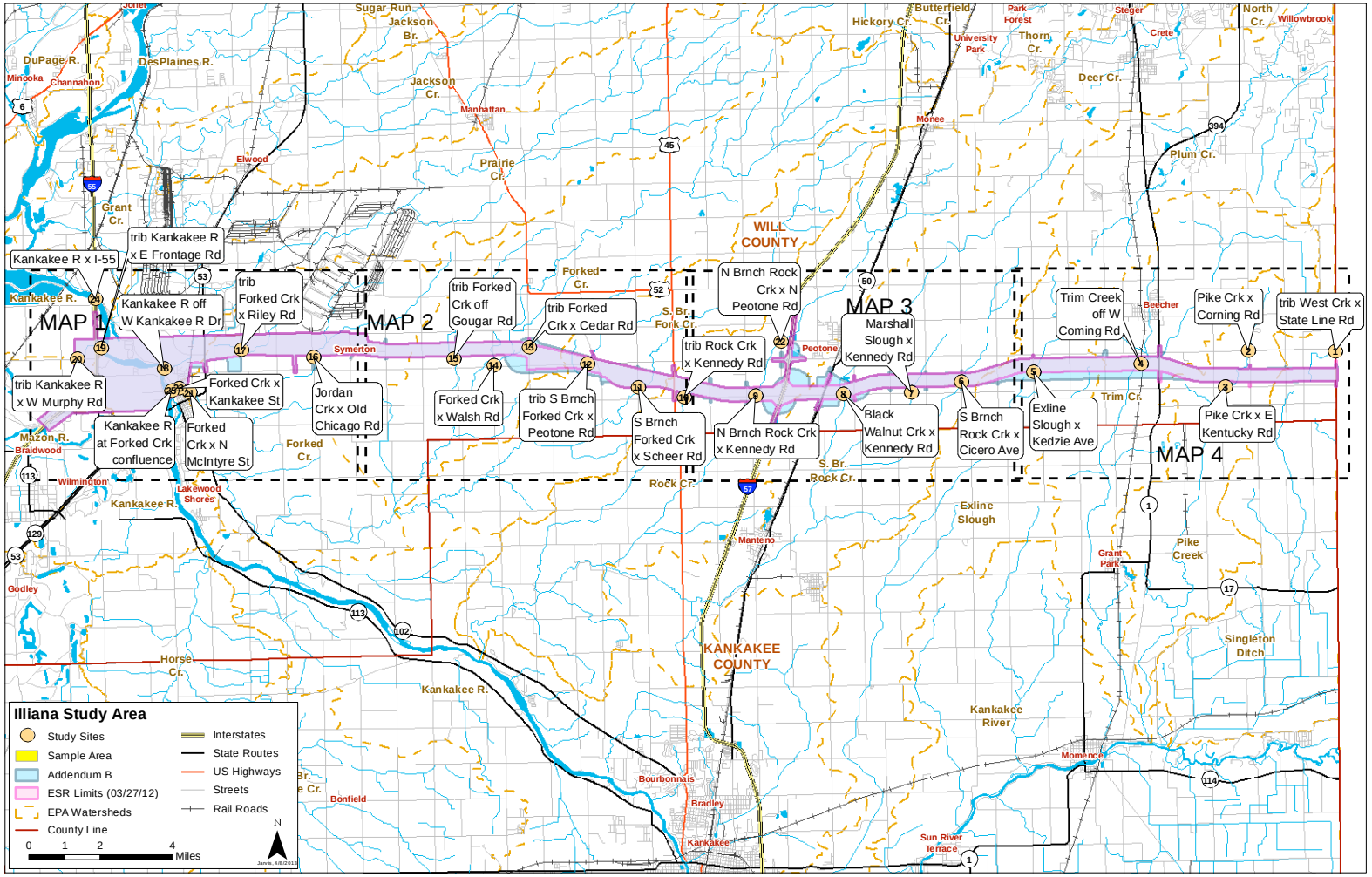

Figure 1. Overview map of the IDOT Illiana Expressway project corridor in Will County, Illinois. The area shaded in lavender represents the project corridor delineated in the original tasking (Sequence 16651A); the areas shaded in light blue represent the additional areas delineated in the Addendum B (Sequence 16651b) tasking. Numbered circles are stream sites identified for habitat assessment. Specific locality information for stream sites designated on maps in **Figures 1–5** is presented in **Table 1** of this report. Numbered maps (1-4, with dashed outlines) correspond to map enlargements presented in **Figures 2–5**. Photographs of stream sites are included in **Appendix 1** of this report.

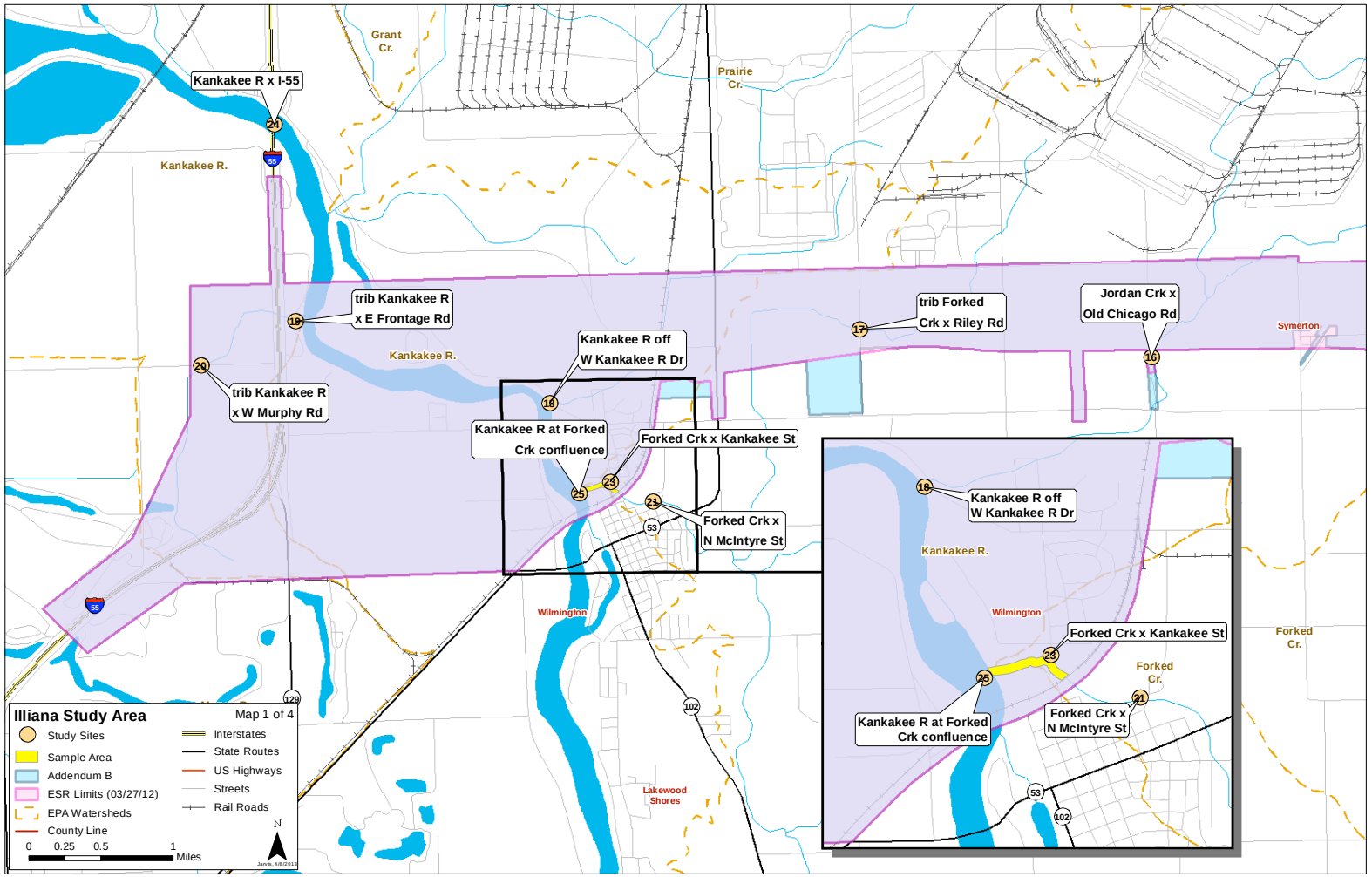

Figure 2. Enlargement 1 map of the IDOT Illiana Expressway project corridor in Will County, Illinois. The area shaded in lavender represents the project corridor delineated in the original tasking (Sequence 16651A); the areas shaded in light blue represent the additional areas delineated in the Addendum B (Sequence 16651b) tasking. Numbered circles are stream sites identified for habitat assessment. See **Figure 1** for location of map enlargement. Yellow sample area polygon (inset) indicates stream reach searched for mussels in association with sample site 23. Specific locality information for stream sites designated on maps in **Figures 1–5** is presented in **Table 1** of this report. Photographs of stream sites are included in **Appendix 1** of this report.

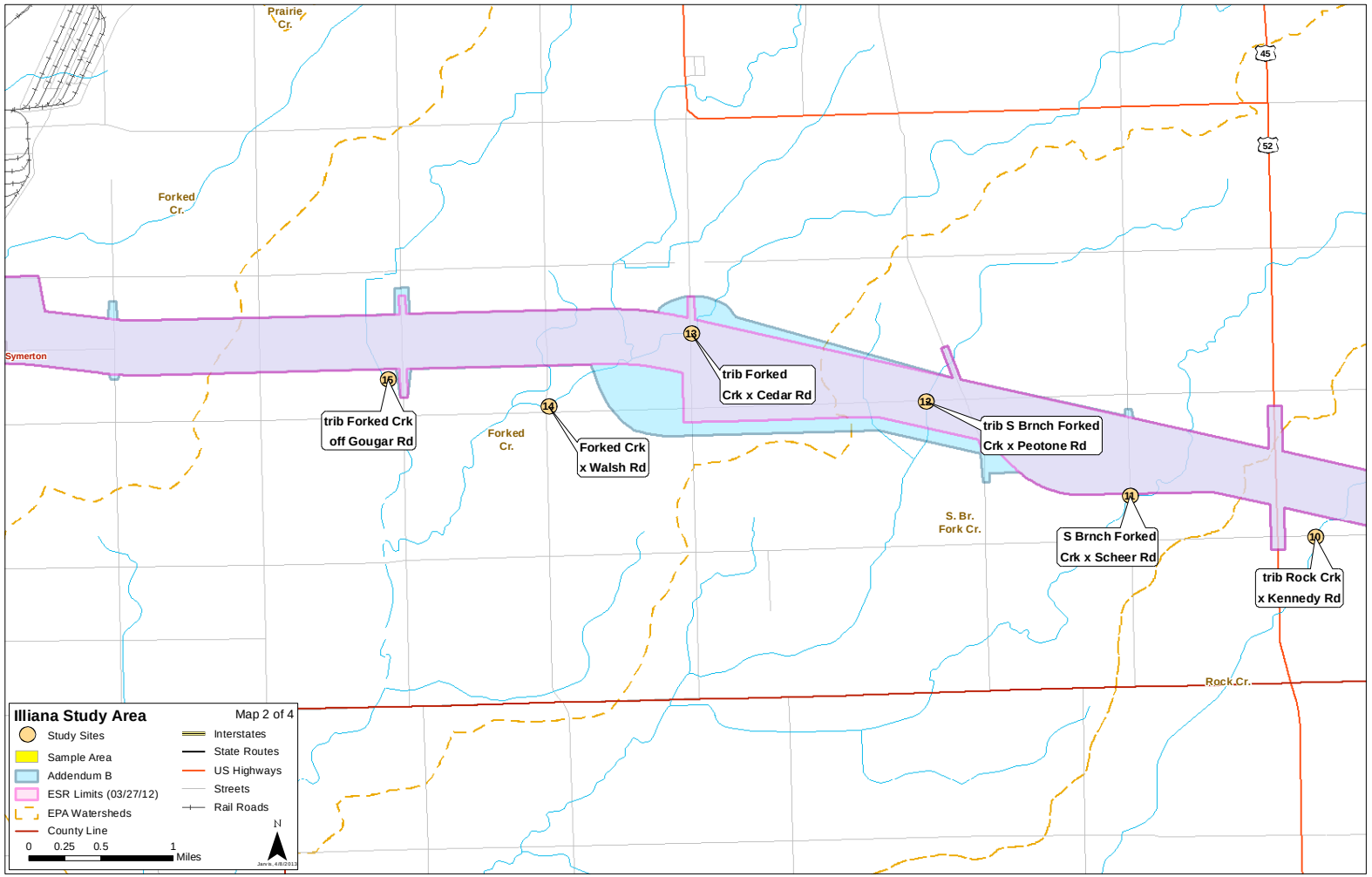

Figure 3. Enlargement 2 map of the IDOT Illiana Expressway project corridor in Will County, Illinois. The area shaded in lavender represents the project corridor delineated in the original tasking (Sequence 16651A); the areas shaded in light blue represent the additional areas delineated in the Addendum B (Sequence 16651b) tasking. Numbered circles are stream sites identified for habitat assessment. See **Figure 1** for location of map enlargement. Specific locality information for stream sites designated on maps in **Figures 1–5** is presented in **Table 1** of this report. Photographs of stream sites are included in **Appendix 1** of this report.

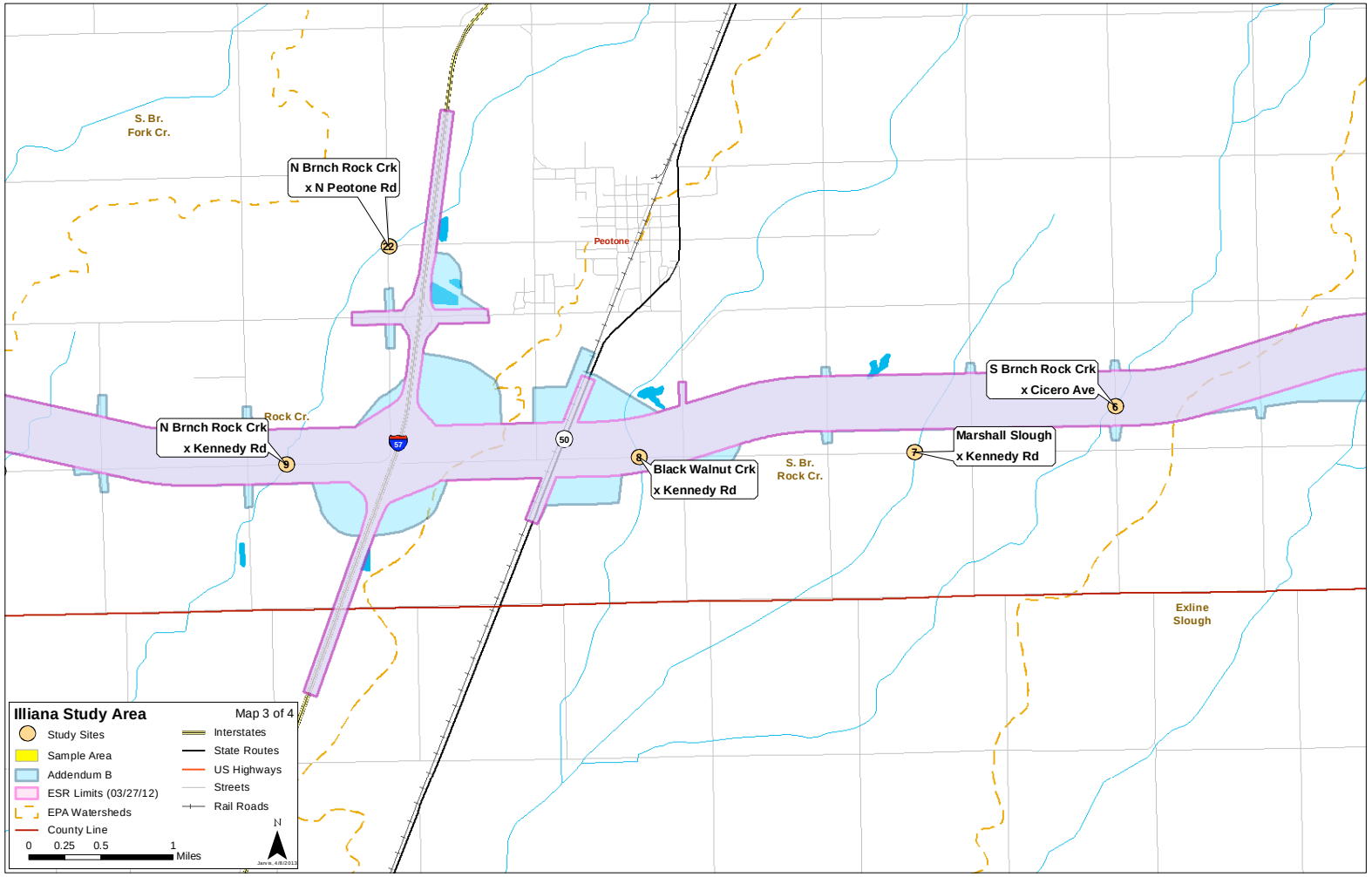

Figure 4. Enlargement 3 map of the IDOT Illiana Expressway project corridor in Will County, Illinois. The area shaded in lavender represents the project corridor delineated in the original tasking (Sequence 16651A); the areas shaded in light blue represent the additional areas delineated in the Addendum B (Sequence 16651b) tasking. Numbered circles are stream sites identified for habitat assessment. See **Figure 1** for location of map enlargement. Specific locality information for stream sites designated on maps in **Figures 1–5** is presented in **Table 1** of this report. Photographs of stream sites are included in **Appendix 1** of this report.

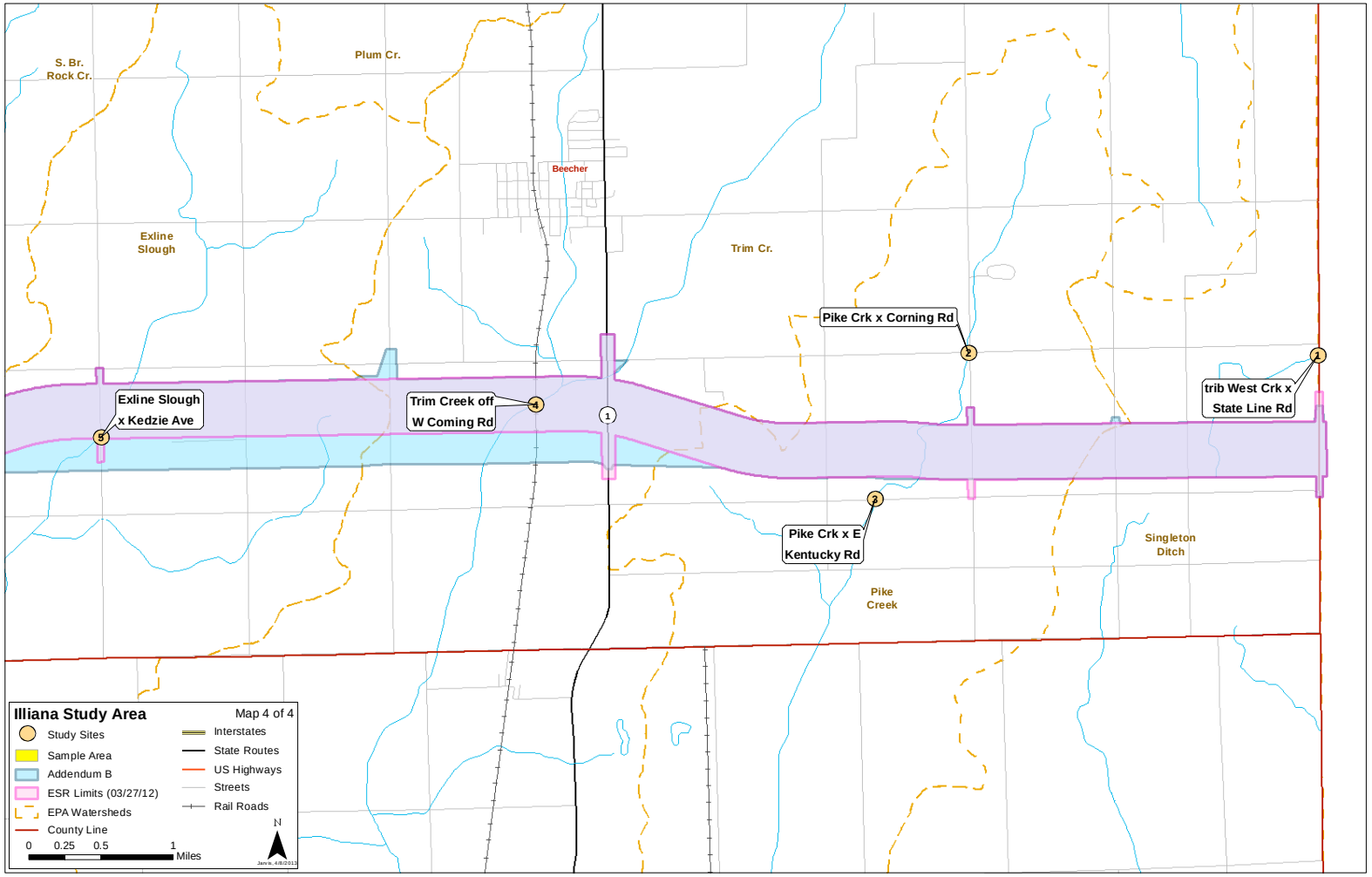

Figure 5. Enlargement 4 map of the IDOT Illiana Expressway project corridor in Will County, Illinois. The area shaded in lavender represents the project corridor delineated in the original tasking (Sequence 16651A); the areas shaded in light blue represent the additional areas delineated in the Addendum B (Sequence 16651b) tasking. Numbered circles are stream sites identified for habitat assessment. See **Figure 1** for location of map enlargement. Specific locality information for stream sites designated on maps in **Figures 1–5** is presented in **Table 1** of this report. Photographs of stream sites are included in **Appendix 1** of this report.

Table 1. Site number, locality information, and stream characterizations for the eleven stream sites in the IDOT Illiana Expressway project corridor in Will County, Illinois, where surveys for unionid mussels were conducted by INHS personnel K.S. Cummings, J.S. Tiemann, A.L. Price, D.K. Shasteen, S.M. Jaworski, and two INHS technicians during 2012. Stream sites are designated on **Figure 1**, and photographs of stream sites are included in **Appendix 1**. Abbreviations: MSL = mean sea level.

ILINX-3. Pike Creek 16-33' (5-10m) upstream (N) E Kentucky Road / 319th Street bridge [E Kentucky Road becomes Kennedy Road about 2.1 mi (3.4 km) west of this bridge (to the west of S Western Avenue)]; 2.7 mi (4.4 km) SE Beecher (town); latitude 41.31202° North, longitude 087.58581° West; elevation: ~690' (210m) MSL; Beecher East, ILL. (7.5', 1990 ed.) USGS topographic quadrangle map.

A survey for freshwater mussels at site ILINX-3 was completed on 30 May 2012 by INHS personnel J.S. Tiemann and S.M. Jaworski (2 man-hours).

ILINX-4. Trim Creek at Kennedy Road bridge, 2.2 mi (3.5 km) SW Beecher; latitude 41.3115° North, 87.6381° West; elevation: ~690' (210m) MSL, Beecher West, ILL. (7.5', 1990 ed.) USGS topographic quadrangle map. This site is just downstream of the site depicted on the map in Figure 5 but still within the corridor.

A survey for freshwater mussels at site ILINX-4 was completed on 25 June 2012 by INHS personnel K.S. Cummings, J.S. Tiemann, A.L. Price, and S.M. Jaworski (4 man-hours).

ILINX-5. Exline Slough at Kedzie Avenue bridge, 3.8 mi (6.1 km) WSW Beecher (town); latitude 41.31881° North, longitude 87.68883° West; elevation: 694' (212m) MSL; Beecher West, ILL. (7.5', 1990 ed.) USGS topographic quadrangle map.

A survey for freshwater mussels at site ILINX-5 was completed on 25 June 2012 by INHS personnel K.S. Cummings, J.S. Tiemann, A.L. Price, and S.M. Jaworski (2 man-hours).

ILINX-8. Black Walnut Creek at West Kennedy Road bridge, 1.6 mi (2.5 km) S Peotone (town); latitude 41.31032° North, longitude 087.79076° West; elevation: 675' (206m) MSL; Peotone, ILL (7.5' series, 1990 ed.) USGS topographic quadrangle map.

A survey for freshwater mussels at site ILINX-8 was completed on 25 June 2012 by INHS personnel K.S. Cummings, J.S. Tiemann, A.L. Price, D.K. Shasteen, and two INHS technicians (2 man-hours).

ILINX-9. North Branch Rock Creek at West Kennedy Road bridge, 3.2 mi (5.1 km) WSW Peotone (town); latitude 41.30971° North, longitude 087.83782° West; elevation: 670' (204m) MSL; Peotone, ILL. (7.5' series, 1990 ed.) USGS topographic quadrangle map.

A survey for freshwater mussels at site ILINX-9 was completed on 25 June 2012 by INHS personnel K.S. Cummings, J.S. Tiemann, A.L. Price, D.K. Shasteen, and two INHS technicians (2 man-hours).

ILINX-14. Forked Creek, 50-80' (15-24m) upstream (E) of South Walsh Road / Co. Hwy 79 bridge; 2.2 mi (3.6 km) SSW Wilton Center (town); also, 6.9 mi (11.1 km) south of Manhattan (town); latitude 41.32265° North, longitude 087.97816° West; elevation: 617' (188m) MSL; Wilton Center, ILL. (7.5' series, 1990 ed.) USGS topographic quadrangle map.

A survey for freshwater mussels at site ILINX-14 was completed on 25 June 2012 by INHS personnel K.S. Cummings, J.S. Tiemann, A.L. Price, D.K. Shasteen, and 2 INHS technicians. (2 man-hours).

Table 1 (concluded).

ILINX-15. Unnamed tributary of Forked Creek, in field, downstream (S) gravel ford of stream, ~600' W of S Gouger Road (access via farm field access lane to west of Gouger Road); 2.7 mi (4.4 km) E Symerton (town); also, 6.8 mi (10.9 km) S Manhattan (town); latitude 41.32542° North, longitude 087.99964° West; elevation: ~625' (191m) MSL; Wilton Center, ILL. (7.5' series, 1990 ed.) USGS topographic quadrangle map.

A survey for freshwater mussels at site ILINX-15 was completed on 25 June 2012 by INHS personnel K.S. Cummings, J.S. Tiemann, A.L. Price, D.K. Shasteen, and 2 INHS technicians. (2 man-hours).

ILINX-16. Jordan Creek, along E side Old Chicago Road, ~2,000 ft N of Wilmington-Peotone Road, 1.2 mi (1.9 km) W Symerton (town); also, 3.9 mi (6.3 km) ENE Wilmington (town); latitude 41.32629° North, 088.07496° West; elevation: ~600' (183m) MSL. Symerton, ILL. (7.5' series, 1993 ed.) USGS topographic quadrangle map.

A survey for freshwater mussels at site ILINX-16 was completed on 25 June 2012 by INHS personnel K.S. Cummings, J.S. Tiemann, A.L. Price, D.K. Shasteen, and two INHS technicians (1 man-hour).

ILINX-23. Forked Creek, Wilmington, Kankakee Street to R.R. bridge, Will County, Illinois, USA; latitude 41.31312° North, 088.14593° West; elevation: ~530' (161m) MSL; Wilmington, ILL. (7.5', 1993 ed.) USGS topographic quadrangle map.

A survey for freshwater mussels at site ILINX-23 was completed on 31 May 2012 by INHS personnel J.S. Tiemann & S.M. Jaworski (1 man-hour)

ILINX-24. Kankakee River, 4 mi NW Wilmington, I-55 bridge, Will County, Illinois, USA; latitude 41.34940° North, 88.19241° West; elevation: ~520' (158m) MSL; Wilmington, ILL. (7.5', 1993 ed.) USGS topographic quadrangle map.

A survey for freshwater mussels at site ILINX-24 was completed on 27 June 2012 by INHS personnel K.S. Cummings, J.S. Tiemann, A.L. Price, D.K. Shasteen, and two INHS Technicians (6 man-hours)

ILINX-25. Kankakee River, Wilmington, Forked Creek confluence, Will County, Illinois, USA; latitude 41.3128°, North 88.1512° West; elevation: ~520' (158m) MSL; Wilmington, ILL. (7.5', 1993 ed.) USGS topographic quadrangle map.

A survey for freshwater mussels at site ILINX-25 was completed on 26 June 2012 by INHS personnel K.S. Cummings, J.S. Tiemann, A.L. Price, D.K. Shasteen, and two INHS Technicians (1 man-hour)

HISTORICAL BACKGROUND

The Kankakee River has been well studied with respect to mussels. Four basin surveys have been conducted on the mussel fauna over the past 100 years. The first survey was conducted in 1909 (Wilson and Clark 1912). A second survey was conducted by Matteson (unpubished) in 1960, followed by Suloway et al. (1981) in 1978. A new Kankakee basin survey was just completed in 2010 (Price et al. 2012). Forty species are known historically from the Kankakee River basin (Tiemann et al 2007). However, surveys conducted throughout the past 100 years have documented species' decline and now only 27 species of freshwater mussels are thought to still inhabit the Kankakee River drainage (Suloway 1981; Kwak 1993; Illinois Department of Natural Resources 1998; Price et al. 2012; INHS Mollusk Collection). Even with these declines the Kankakee River has been recognized as a Highly Valued aquatic resource (Page et al. 1992) and is still known for its faunal diversity (Kwak 1993). Historical data for streams within the project corridor were available for the Kankakee River, Forked Creek, Rock Creek, Exline Slough, Trim Creek, and Pike Creek. However, historical data for sites specific to the corridor were only available for the Kankakee River at I-55 (1991, 2008, and 2010) and Black Walnut Creek (2000 and 2010).

METHODS

A survey for freshwater mussels was conducted at 11 sites in the Kankakee River Basin within the Illiana Expressway corridor by INHS personnel K.S. Cummings, J.S. Tiemann, and five other INHS staff members in May and June of 2012. Additional data from recent collections made in the corridor were also used in this report. An example is the Kankakee River just north of site 19 where collections were made in association with a pipeline project in 2001, 2004, 2007, and 2009. Species known historically from streams sampled in 2012 but not collected in the present study are denoted in **Table 2** with an "X". Live mussels and shells were collected at each site to assess past and current freshwater mussel occurrences. Live mussels were surveyed by hand grabbing and visual detection (e.g. trails, siphons, exposed shell) when water conditions permitted. Efforts were made to cover all available habitat types present at a site including riffles, pools, slack water, and areas of differing substrates. The banks and areas of the shoreline upstream and downstream at each site were also visually searched for the presence of fresh dead and relict shells. Our timed searches ranged from 1 to 6 person-hours at each site.

Nomenclature used for freshwater mussels discussed in this report follows Turgeon et al. (1998) except for recent taxonomic changes to the gender ending of lilliput (*Toxolasma parvum*), which follows Williams et al. (2008). Turgeon et al. (1998), and also includes recent changes in date of publication, original spelling, or priority of names. The current status of threatened and endangered species of mussels discussed in this report are taken from U.S. Department of Interior, Fish and Wildlife Service (USDI, FWS) (1996, 1997), Illinois Endangered Species Protection Board (IESPB) (2011), and Mankowski (2010, 2012). Voucher specimens of each species collected were returned for deposition in the INHS Mollusk Collection, Champaign.

RESULTS AND DISCUSSION

Species Richness. A total of 26 species of freshwater mussels were observed in the Kankakee River basin project corridor in our survey, 24 of which were collected alive (**Table 2**). Across all sites, the number of live species collected ranged from 0 to 16 and the total number

of species collected (live + dead + relict) ranged from 1 to 18. Tributaries contained fewer species than the Kankakee River mainstem, with 1 to 7 live species and 1 to 8 total species. At the two mainstem sites species richness ranged from 9 to 16 live species and 9 to 18 total species.

Seven species were collected in the tributaries that were not found in the mainstem, five of which were alive and conversely 13 species were found in the mainstem and not the tributaries (**Table 2**). Tributaries and mainstem sites shared five species in common. In tributary sites, species diversity and abundance were very low. With the exception of three species – the cylindrical papershell (*Anodontoides ferussacianus*), giant floater (*Pyganodon grandis*), and the fatmucket (*Lampsilis siliquoidea*) – the remaining species were represented by 5 or fewer individuals. One species of note found in the tributaries (Forked and Trim creeks) was the Illinois State Threatened slippershell (*Alasmidonta viridis*). A single individual was found in Forked Creek at site ILINX-14 and two individuals were found in Trim Creek at site ILINX-4. In contrast the mainstem sites were highly diverse and site ILINX-24 (Kankakee River at I-55) is one of the most diverse in the state of Illinois with 23 species collected alive there since 1991, 16 of which were found in the current study.

A total of 335 individuals were collected across the 11 sites and the number of live specimens collected at a given site ranged from 0 to 205. The range of live individuals collected at tributary sites ranged from 5 to 40 and from 24 to 205 at mainstem sites. The most abundant species across all sites was the mucket, which comprised 41% of all individuals collected. In tributary sites, the cylindrical papershell was the most common species and made up 17% of all mussels in our samples.

Noteworthy Finds. This survey resulted in the collection 24 live species and two additional species represented by shell only. Two species, spike (*Elliptio dilatata* – a state threatened species) and lilliput (*Toxolasma parvum*) were only represented in at sites surveyed during this study by dead or relict shell. Three live state-listed species were found in our survey: two at the mainstem sites on the Kankakee River (black sandshell, *Ligumia recta* and purple wartyback, *Cyclonaias tuberculata*) and one in the Forked and Trim creeks (slippershell, *Alasmidonta viridis*) (**Table 2**). Subsequent to our survey INHS botanists David Ketzner, Paul Marcum, and George Geatz collected some mussel shells from a site on the Kankakee River, located ~1200 ft. downstream of its confluence with Forked Creek (site ILINX-25). Included among these shells was a fresh dead specimen of the federally endangered sheepnose (*Plethobasus cyphyus*). Tissue was still attached to the adductor scars and along the edge of the shell indicating that it was recently alive and probably died within the previous few weeks. A summary of the historical occurrence of the four listed species found alive in this study is given below. The last date of live occurrence is given in parentheses.

FEDERALLY ENDANGERED

Sheepnose (*Plethobasus cyphyus*): The sheepnose was historically widespread in the mainstem Kankakee River in Illinois with live records from the river at Momence (1960), Sun River Terrace (1960), 3.5 mi NE Aroma Park (2010), Aroma Park (2010), Kankakee (1987) (all Kankakee County), and from the river at Custer Park (1986), Wilmington (1988), and 2.7 mi WNW Wilmington at the BP pipeline crossing (adjacent to site ILINX-19 in this study) (2001, 2004, and 2007), all in Will County. It was not found during the 2009 survey of the river at the BP pipeline crossing.

STATE THREATENED

Purple Wartyback (*Cyclonaias tuberculata*): The purple wartyback was also historically widespread in the mainstem Kankakee River in Illinois, with live records from the river at Momence (2010), Aroma Park (2007), Kankakee (2010), 2 mi. and 3 mi. NW Bourbonais (2012), Aldorf (2012) (all Kankakee County), and from the river at Custer Park (2000), Resthaven (2008), 5.5 mi. ESE Ritchie (2010), Wilmington (2012, this study), the Interstate 55 bridge (2012, this study), and 2.7 mi WNW Wilmington at the BP pipeline crossing (adjacent to site ILINX-19 in this study) (2009), all in Will County.

Black Sandshell (*Ligumia recta*): The black sandshell was also historically widespread in the mainstem Kankakee River in Illinois with live records from near the Indiana state line (1960), Momence (2010), Aroma Park (2010), Kankakee (2012), 2 mi. and 3 mi. NW Bourbonais (2012), Aldorf (2012) (all Kankakee County), Custer Park (2010), 5.5 mi. ESE Ritchie (2010), Wilmington (2012, this study), the I-55 bridge (2012, this study), and 2.7 mi WNW Wilmington at the BP pipeline crossing (adjacent to site ILINX-19 in this study) (2009), all in Will County.

Slippershell (*Alasmidonta viridis*): The slippershell is typically found in small stream species tributary to larger rivers. It was fairly widespread in the Kankakee basin but records for live occurrences are known only from Baker Creek, 3.6 mi. E Kankakee in Kankakee County (2005), Trim Creek, 2.2 mi SW Beecher (2012, this study), and Forked Creek, 3.9 mi. E Symerton (2012, this study).

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Table 2. Freshwater mussels (Family Unionidae) recorded from streams in and adjacent to the IDOT Illiana Expressway project corridor in Will County, Illinois by INHS personnel during their surveys for freshwater mussels in May and June 2012. Data from these surveys, presented below, include the number of individuals found alive and those found only as shell (L = Live, D = dead and R = relict). Historical data (e.g., those species not found during this survey, indicated with an X, below) were taken from the Illinois Natural History Survey Mollusk Collection database, Champaign. Special status species include three listed as threatened or endangered in Illinois or federally endangered; these are noted with the superscripts **ST, SE, or FE**

SPECIES	**Kankakee River**		
ILINX Site No.:	25	24	19*
Subfamily Anodontinae			
Alasmidonta marginata	10	1	L
Lasmigona complanata	-	X	L
Lasmigona costata	-	1	L
Pyganodon grandis	-	X	L
Strophitus undulatus	-	2	L
Utterbackia imbecillis	-	1	L
Subfamily Ambleminae			
Amblema plicata	1	18	L
Cyclonaias tuberculata **ST**	2	9	L
Elliptio dilatata **ST**	-	R	R
Fusconaia flava	1	X	D
Megalonaias nervosa	-	X	L
Plethobasus cyphyus **FE**	-	X	L
Pleurobema sintoxia	-	4	L
Quadrula pustulosa	-	14	L
Quadrula metanevra	-	X	L
Quadrula quadrula	-	1	D
Tritogonia verrucosa	-	X	-
Subfamily Lampsilinae			
Actinonaias ligamentina	-	137	L
Epioblasma triquetra **SE**	-	X	R
Lampsilis cardium	5	1	L
Lampsilis siliquoidea	-	R	L
Leptodea fragilis	1	3	L
Ligumia recta **ST**	2	3	L
Obliquaria reflexa	-	X	-
Potamilus alatus	1	9	L
Potamilus ohiensis	-	-	D
Truncilla donaciformis	-	1	-
Truncilla truncata	1	X	L
Venustaconcha ellipsiformis	-	1	L
Villosa iris **SE**	-	X	-
Live individuals (n= 229)	24	205	-
Species live (n= 18)	9	16	21
Species dead (n= 2)	0	2	5
Species TOTAL (n= 20)	9	18	26

* Site “19” in this table is historical data from the Kankakee River adjacent to site 19 given on the map in **Figures 1 & 2.** Mussels were collected here in 2001, 2004, 2007, and 2009 and those data are presented above.

Table 2. Freshwater mussels (Family Unionidae) recorded from tributary streams in the IDOT Illiana Expressway project corridor in Will County, Illinois by INHS personnel during their surveys for freshwater mussels in May and June 2012. Data from these surveys, presented below, include the number of individuals found alive and those found only as shell (L = Live, D = dead and R = relict). Historical data (e.g., those species not found during this survey, indicated with an X, below for site ILINX-8) were taken from the Illinois Natural History Survey Mollusk Collection database, Champaign. Special status species include three listed as threatened or endangered in Illinois or federally endangered; these are noted with the superscripts [ST, SE, or FE]

SPECIES	TRIBUTARIES								
ILINX Site No.:	23	16	15	14	9	8	5	4	3
Subfamily Anodontinae									
Alasmidonta viridis [ST]	-	-	-	1	D	X	-	2	-
Anodontoides ferussacianus	-	D	1	1	10	21	1	23	D
Lasmigona complanata	-	D	-	1	-	X	-	1	-
Lasmigona compressa	-	1	-	-	-	X	-	-	R
Pyganodon grandis	R	D	1	-	R	-	1	14	2
Strophitus undulatus	-	D	-	3	R	X	-	-	-
Subfamily Ambleminae									
Amblema plicata	-	-	-	R	-	-	-	-	-
Subfamily Lampsilinae									
Actinonaias ligamentina	D	-	-	-	-	-	-	-	-
Lampsilis cardium	-	-	-	3	2	-	-	-	-
Lampsilis siliquoidea	-	1	-	10	-	-	-	-	-
Toxolasma parvum	-	D	-	-	D	X	-	-	-
Venustaconcha ellipsiformis	5	-	-	1	-	-	-	-	-
Live individuals (n= 106)	5	2	2	20	12	21	2	40	2
Species live (n= 9)	1	2	2	7	2	1	2	4	1
Species dead (n= 3)	2	5	0	1	4	0	0	0	2
Species TOTAL (n= 12)	3	7	2	8	6	1	2	4	3

APPENDIX 1

Photographs of stream sites associated with the IDOT ILLIANA Expressway project corridor in Will County, Illinois, where surveys for unionid mussels were conducted by INHS personnel during May and June 2012.

Descriptive information pertinent to each of these sites is presented in Table 1 of this report. These sites are indicated on Figures 1–5 of this report.

A. 

B. 

ILINX-3. Pike Creek 16-33' (5-10m) upstream (N) E Kentucky Road / 319th Street bridge [E Kentucky Road becomes Kennedy Road about 2.1 mi (3.4 km) west of this bridge (to the west of S Western Avenue)]; 2.7 mi (4.4 km) SE Beecher (town); latitude 41.31202° North, longitude 087.58581° West; elevation: ~690' (210m) MSL; Beecher East, ILL. (7.5', 1990 ed.) USGS topographic quadrangle map. **A**: facing upstream (north); **B**. facing downstream (south). Photos by M.J. Wetzel (INHS), 22 March 2012.

A.

B.

ILINX-8. Black Walnut Creek at West Kennedy Road bridge, 1.6 mi (2.5 km) S Peotone (town); latitude 41.31032° North, longitude 087.79076° West; elevation: 675' (206m) MSL; Peotone, ILL (7.5' series, 1990 ed.) USGS topographic quadrangle map. **A**: facing upstream (north-northeast); **B**. facing downstream (south). Photos by M.J. Wetzel (INHS), 22 March 2012.

A.

B.

ILINX-9. North Branch Rock Creek at West Kennedy Road bridge, 3.2 mi (5.1 km) WSW Peotone (town); latitude 41.30971° North, longitude 087.83782° West; elevation: 670' (204m) MSL; Peotone, ILL. (7.5' series, 1990 ed.) USGS topographic quadrangle map. **A**: facing upstream (north-northeast); **B**. facing downstream (south). Photos by M.J. Wetzel (INHS), 22 March 2012.

A.

B.

ILINX-14. Forked Creek, 50-80' (15-24m) upstream (E) of South Walsh Road / Co. Hwy 79 bridge; 2.2 mi (3.6 km) SSW Wilton Center (town); also, 6.9 mi (11.1 km) south of Manhattan (town); latitude 41.32265° North, longitude 087.97816° West; elevation: 617' (188m) MSL; Wilton Center, ILL. (7.5' series, 1990 ed.) USGS topographic quadrangle map. **A**: facing upstream (east-northeast); **B**. facing downstream (west). Photos by M.J. Wetzel (INHS), 22 March 2012.

A.

B.

ILINX-16. Jordan Creek, along E side Old Chicago Road, ~2,000 ft N of Wilmington-Peotone Road, 1.2 mi (1.9 km) W Symerton (town); also, 3.9 mi (6.3 km) ENE Wilmington (town); latitude 41.32629° North, 088.07496° West; elevation: ~600' (183m) MSL. Symerton, ILL. (7.5' series, 1993 ed.) USGS topographic quadrangle map. **A**: facing upstream (north); **B**. facing downstream (south). Photos by M.J. Wetzel (INHS), 22 March 2012.

A.

B.

ILINX-23. Forked Creek, Wilmington, River to R.R. bridge, Will County, Illinois, USA; T33N, R9E, sec. 25, NW; latitude 41.31312° North, 88.14593° West. **A**: facing upstream (E) from the Kankakee River to Kankakee Street; **B**. Same location just further upstream in Forked Creek). Photos by K.S. Cummings, INHS, 26 June 2012.

ILINX-24. Kankakee River, 4 mi NW Wilmington, Interstate 55 bridge, Will County, Illinois, USA; latitude 41.34940° North, 88.19241° West. South Bank, facing upstream. Photo by K.S. Cummings, INHS, 26 June 2012.

ILINX-25. Kankakee River, Wilmington, Forked Creek confluence, Will County, Illinois, USA; latitude 41.3128° North, 88.1512° West. Looking upstream (S) from the mouth of Forked Creek to the R.R. bridge. The Illinois Route 53 bridge is in the distance. Photo by K.S. Cummings, INHS, 26 June 2012.

Botanical Survey Report

Botanical Survey and Assessment of the IDOT Illiana Study Area (2012 Survey Area and 2013 Addendum B), in Will and Kankakee counties, Illinois

IDOT Sequence Numbers: 16651A & 16651B

Prepared by:
Michael J. C. Murphy
and Janet L. Jarvis (Maps & GIS)

INHS/IDOT Statewide Biological Survey & Assessment Program
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ILLINOIS NATURAL HISTORY SURVEY
PRAIRIE RESEARCH INSTITUTE
ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

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INTRODUCTION

The Illinois Natural History Survey (INHS) received a request from the Illinois Department of Transportation (IDOT) in March 2012 for botanical surveys to be conducted within the IDOT 2012 Illiana Study Area, with an addendum (Addendum B) received in March 2013. The Illiana Expressway is an approximately 50 mile toll road proposed in northeast Illinois and northwest Indiana, which would connect Interstate-55 north of Wilmington, Illinois and Interstate-65 near Lowell, Indiana. The Illinois portion of this study area extends approximately 36 miles from the Illinois/Indiana state line (State Line Road), west to Interstate-55, approximately two miles west of Wilmington, IL (**App. 1**, **Fig. 1A – 1F**). The total IDOT Illiana Study Area encompassed 15,701 acres (2012 Survey Area = approximately 13,898 acres; 2013 Addendum B = approximately 1,803 acres). Nearly all of IDOT 2012 Illiana Study Area and the entire 2013 Addendum B Study Area occur in Will County (15,663 acres), with a very small portion of the 2012 study area occurring in Kankakee County (38 acres). Two study area references will be used throughout this report and are as follows: 1) IDOT 2012 Illiana Study Area – referring to the original 2012 survey area of 13,898 acres, and 2) IDOT Illiana Study Area – referring to the total 15,701 acre study area (2012 study area and 2013 addendum study area combined).

METHODS

Vegetation/Land Cover-Typing

The entire IDOT 2012 Illiana Study Area was cover-typed during the 2012 growing season using cover-type categories provided by IDOT (**App. 1, Fig. 2A – 2F; App. 2, Table 1**), and Addendum B was cover-typed during March of 2013. Wetland cover-typing was done primarily during the 2012 growing season with some wetland communities on the western end of the study area cover-typed during the winter of 2013. Wetland cover-type categories are also provided in **App. 1, Fig. 2A – 2F and App. 2, Table 1.**

Botanical Surveys

Botanical surveys were conducted during the 2012 growing season between 28 March and 31 September, and examined all areas within the 2012 survey boundaries shown in **App. 1, Fig. 1A – 1F**. Botanical surveys attempt to provide comprehensive vascular plant species lists for all natural and cultural vegetation community types, with primary objectives including: **1)** locating and documenting occurrences of threatened and endangered species, **2)** identifying any high quality botanical sites that may be present, which includes three categories (**Significant**, **Exceptional**, and/or **Regionally Noteworthy** Botanical Resource Areas – defined below), and **3)** identification of native vegetation communities with corresponding species compositions and subsequent evaluations of natural quality.

Significant Botanical Resource Area – area with a high level of natural quality, which would appear to qualify for the Illinois Natural Areas Inventory (INAI) as a Category 1 natural area.

Exceptional Botanical Resource Area – area that based on floristic quality would likely qualify for the INAI as a Category 1 natural area, but does not meet other INAI criteria for a particular community type (e.g., size requirement).

Regionally Noteworthy Botanical Resource Area – relatively high quality natural community that likely does not meet INAI criteria for a Category 1 natural area, but is clearly an outstanding example of a specific community type, or assemblage of community types, for a particular region of Illinois, or within a defined project area.

All areas potentially representing natural vegetation communities were identified on aerial photographs provided by IDOT and/or ground explorations, and searched for threatened and endangered species. Additionally, the Illinois Natural Heritage Database (INHD 2012) was examined for any threatened or endangered vascular plant species previously reported from this area to refine the focus of ground surveys. Search results from the Illinois Natural Heritage Database revealed no records of threatened and endangered species within the IDOT 2012 Illiana Study Area survey limits. Several species had element occurrence records (EOR) with locations occurring in relatively close proximity to the IDOT 2012 Illiana Study Area, but these locations occurred outside of the survey limits.

Species known to occur within this region, at locations outside of the IDOT 2012 Illiana Study Area, include forked aster (*Aster furcatus*), Oklahoma grass pink orchid (*Calopogon oklahomensis*), grass pink orchid (*C. tuberosus*), tubercled orchid (*Platanthera flava* var. *herbiola*), ear-leaved foxglove (*Tomanthera auriculata*), and large cranberry (*Vaccinium macrocarpon*) (INHD 2012). Searches were conducted in an attempt to locate appropriate habitats for these species, which include: forked aster (north-facing forested bluffs and seepage habitats), grass pink orchids (mesic to wet-mesic sand prairies, bogs, and fens), tubercled orchid (mesic to wet-mesic sand prairies), ear-leaved foxglove (disturbed prairies of various moisture classes), and large cranberry (acidic bogs) (Swink and Wilhelm 1994, Herkert and Ebinger 2002, ILLS 2013). When appropriate habitats for any of these species were located, searches for these species were conducted throughout the growing season.

Throughout surveys, species lists were compiled for all areas encountered during the 2012 growing season that represented natural vegetation communities, and relative abundance values were assigned to each species. Relative abundance values used are as follows:

1 = rare: very few individuals observed
2 = occasional: infrequently observed
3 = common: frequently observed
4 = abundant: very frequently observed
5 = very abundant: community dominant

Approximately 350 vascular plant specimens were collected and preserved for laboratory examination and/or documentation, with GPS coordinates (WGS84/NAD83) taken at all collection locations. Collected specimens are deposited in the Illinois Natural History Survey Herbarium (ILLS), in Champaign, Illinois. After laboratory analysis of collected plant specimens was completed, a floristic quality assessment (FQA) based on Taft et al. (1997) was conducted on remnant habitats possessing noteworthy remnant quality to further evaluate and substantiate empirical determinations of community quality, based on INAI grades. Botanical nomenclature follows Taft et al. (1997) and if not specifically stated, scientific names followed by an asterisk (*) throughout this report denote vascular plants that are adventive to the region. Community classification and grades of natural quality follow White (1978), and grades of natural quality are as follows:

Grade A: Relatively stable or undisturbed communities
Grade B: Late successional or lightly disturbed communities
Grade C: Mid-successional or moderately to heavily disturbed communities
Grade D: Early successional or severely disturbed communities
Grade E: Very early successional or very severely disturbed communities

Eastern Prairie Fringed Orchid (EPFO) Surveys

Platanthera leucophaea (Nutt.) Lindl. (eastern prairie fringed orchid [EPFO]), a species once widespread across much of the central U.S. (and to a lesser extent, portions of the eastern U.S. and adjacent southern Ontario), is listed as federally threatened in the U.S. and state endangered in Illinois (IESPB 2011). The United States Fish and Wildlife Service (USFWS) developed a survey protocol in an effort to maximize likelihood of detecting this species in appropriate habitats (http://www.fws.gov/midwest/endangered/plants/epfo.html). In northeastern Illinois, this protocol requires EPFO surveys to be conducted between 28 June and 11 July, a time period when this species is typically in bloom.

Surveys for EPFO in the Illiana study area deviated slightly from protocol survey date guidelines. Due to unseasonably warm temperatures during the spring and early summer of 2012, the option to conduct surveys slightly earlier and outside of the survey date guidelines was approved (Cathy Pollack, USFWS, pers. comm., 12 June, 2012). Following this, 2012 Illiana EPFO surveys were conducted on 27 & 29 June, and 6 July. Additionally, the 2012 growing season in Illinois was one of the hottest on record, and much of the state was being affected by a very severe drought. It is uncertain if, and how, these conditions may have affected EPFO throughout the state.

Before EPFO surveys were conducted, an attempt was made to locate all remnant prairie habitats (or other community types potentially representing suitable EPFO habitat) within the IDOT 2012 Illiana Study Area, during the months of March, April, May, and June. Suitable habitats found included mesic, wet-mesic and wet prairie, as well as sedge meadow/wet-prairie. Surveys for EPFO were conducted in all areas represented by these habitat types. Assessment of additional areas within the 2013 addendum revealed no additional areas representing potential EPFO habitat.

Areas surveyed for EPFO during the 2009 growing season (Murphy 2009) and 2010 growing season (Hill 2010) with negative results were not resurveyed on three non-consecutive days during the above outlined survey dates. However, these areas were visited multiple times (some areas three to four times) during the 2012 growing season, but on dates occurring outside the above outlined survey window.

Forest Sampling (non-wetland forest habitats)

Preceding forest sampling efforts, all forest habitats (or areas appearing to be forest habitats on aerial photography) occurring within the IDOT 2012 Illiana Study Area were visited at least once during the spring and/or summer of the 2012 growing season. These initial surveys, in addition to focusing on the above outlined objectives, also served to determine whether these areas were forest habitats (or overgrown pastures and/or shrubland habitats) and if so, if they were wetland or upland habitats.

Following initial site visits, four upland forest sites (***shown in* App. 1, Fig. 2B**) were selected based on the following criteria: 1) they met the size requirement as indicated by IDOT (forest stands $\geq$ 20 acres) and 2) these forest stands were non-wetland (i.e., not forested wetland) habitats. Evaluations of natural quality at each individual site are based on the composition and structure of all forest vegetation strata, including canopy and subcanopy layers, shrub layer, and ground flora layer.

Forest sampling was conducted during September, and utilized circular, 5,382 ft.² (500 m²) sampling plots (0.124 acres [0.05 ha]; radius = 41.4 ft. [12.62 m]). Data collected earlier in the growing season revealed that each of these forest habitats, ranging from 21 to 30 acres in size, were moderately to heavily degraded, and had relatively homogenous stand compositions. Due to the relatively small size and low

diversity of tree species in these forest habitats, it was determined that 8 circular plots per site would be sufficient to accurately characterize stand density and composition. Sampling plots were positioned approximately 33 ft. (10 m) to 66 ft. (20 m) from forest edges, and stratified across stands with individual plots spaced 98 ft. (30 m) to 164 ft. (50 m) apart, depending on forest size and configuration.

Within each sampling plot, all stems with a diameter-at-breast-height (DBH) $\geq$ 3.94 in. (10 cm) were identified and their diameter recorded. If an individual stem having a DBH $\geq$ 10 cm exhibited multiple stems (coppice stems that were < 10 cm DBH), these stems were also measured to fully account for the total basal area represented by that individual and that species within the forest sampling area. For tree density calculations (as well as average DBH calculations), each stem of a multi-stemmed individual was considered as an individual tree (i.e., a three-stemmed tree would be considered as three individual trees). From these data, relative frequency, relative density, density/hectare, relative basal area, basal area/hectare, and the Importance Value 300 (IV300 = sum of relative frequency, relative density, and relative basal area) were calculated.

RESULTS

Vegetation/Land Cover-typing Results

Thirty-four vegetation and land cover-types were mapped in the 15,701 acre IDOT Illiana Study Area (**App. 2, Table 1**). Eighteen cover-types represented wetland cover-types and comprised 2% (315.6 acres) of the IDOT Illiana Study Area (**App. 2, Table 1**). Open water habitats (i.e., riverine, stream, non-wetland pond, and lacustrine) comprised 1.8% (276.5 acres) of the study area, and non-wetland terrestrial cover-types (n = 12 cover-types) comprised 96.2% (15,108.9 acres) (**App. 2, Table 1**).

Approximately 75% (11,784.3 acres) of the IDOT Illiana Study Area was represented by land used for agricultural purposes (including cover-types Cropland, Farmed Wetland* and Pasture/Hayland), and 13.3% (2,081.6 acres) was represented by developed land (**App. 2, Table 1**).

Vegetation/Land Cover-types (Non-wetland) in the IDOT Illiana Study Area

Cropland

Cropland comprised 11,376.8 acres (72.5%) of the study area (**App. 2, Table 1**). The two major crops in this region are corn (*Zea mays*) and soybeans (*Glycine max*). Grown to a much lesser extent in this region are wheat (*Triticum aestivum*) and other small grains (e.g., Barley [*Hordeum vulgare*] and Rye [*Secale cereale*]).

Urban/Built-up/Developed Land

Urban, built-up and/or developed land comprised 2,081.6 acres (13.3%) of the study area (**App. 2, Table 1**), and occurred primarily in the Wilmington and Peotone areas.

Forest (non-wetland)

Non-wetland forest communities comprised 533.3 acres (3.4%) of the study area (**App. 2, Table 1**), and occurred almost exclusively in and near the Wilmington area. Non-wetland forests are discussed in detail in the Native Vegetation Community Descriptions section of this report.

Shrubland

Shrubland habitats comprised 459.3 acres (2.9%) of the study area (**App. 2, Table 1**). This cover-type occurred in old-field areas that were undergoing woody species encroachment consisting of shrubs and small trees. These areas commonly occurred adjacent to small streams running through cropland.

Pasture and Hayland

Pasture and hayland areas comprised 305.8 acres (2%) of the study area (**App. 2, Table 1**), and were frequently associated with, and adjacent to residences in rural areas. These areas were dominated by non-native grasses, with non-native and native ruderal forb species also common.

Non-native Grassland

Non-native grassland comprised 247.7 acres (1.6%) of the study area (**App. 2, Table 1**). These areas were dominated by planted or naturalized non-native grass species, with adventive and native ruderal forb species common. These areas were frequently adjacent to small streams running through cropland.

Open Water Areas (Cover-types Riverine [River], Stream, Pond, and Lacustrine [Lake])
Open water habitats comprised 276.5 acres (1.8%) of the study area (**App. 2, Table 1**), and the majority of this acreage occurred in the Wilmington Area.

Mining Areas
Areas that were historically mined comprised 47.6 acres (0.3%) of the study area (**App. 2, Table 1**) and were located west of Wilmington, near Interstate-55.

Planted Prairie
Planted prairie comprised 23.2 acres (0.15%) of the study area (**App. 2, Table 1**), and this cover-type occurred inside the IDNR Des Plaines State Conservation Area, in Wilmington, IL, and was dominated by the native grasses big bluestem (*Andropogon gerardii*) and Indian grass (*Sorghastrum nutans*), with adventive forbs and native ruderal forbs common.

Prairie (non-wetland native prairie communities)
Non-wetland prairie communities comprised 14.5 acres (0.09%) of the study area (**App. 2, Table 1**), and 18 sites represented this cover-type (Sites 1 – 12 & 19) occurring in the Peotone area; Sites 13 – 17 occurring in the Wilmington area [Site 18 = Wetland Site 264; see INHS wetland report). Prairie Site 1 (**Exceptional Botanical Resource Area 1**) and Prairie Site 3 (**Regionally Noteworthy Botanical Resource Site 2**) are discussed in detail in the High Quality Botanical Sites section of this report, and the remaining prairie communities were more degraded and are discussed in detail in the Native Vegetation Community Descriptions section of this report.

Barren Land
Barren land comprised 11.5 acres (0.07%) of the study area (**App. 2, Table 1**), and consisted of areas that had been developed at one time, but were cleared, with poor rocky soils (and sometimes remains of concrete foundations) present. Adventive and/or native ruderal species were present, and often beginning to cover evidence of these past disturbances.

Forbland
Forbland comprised 4.5 acres (0.03%) of the study area (**App. 2, Table 1**). These areas were mainly dominated by native ruderal forb species, with non-native forb and grass species also commonly encountered.

Tree Planting
One tree planting occurred in the study area, comprising 3.1 acres (0.02%) of the study area (**App. 2, Table 1**), and occurred just west of Interstate-55 in a matrix of cropland.

Vegetation/Land Cover-types (Wetland) in the IDOT Illiana Study Area

Wetland cover-types (n = 18) comprised 315.6 acres (2%) of the IDOT Illiana Study Area, and are summarized in **App. 2, Table 1**. Full descriptions of these vegetation/land cover-types are provided in the INHS wetlands report.

Botanical Survey Results

Threatened and Endangered Species

Two state threatened species were found within the IDOT Illiana Study area – ***Aster furcatus*** **Burgess** (forked aster) and ***Tomanthera auriculata*** **(Michx.) Raf.** (ear-leaved foxglove). One forked aster population was found occurring along the forested bluffs on the south side of the Kankakee River, near the western edge of Wilmington, IL (**App. 1, Fig. 2B**), and one ear-leaved foxglove population was found within the Illinois Department of Natural Resources (IDNR) Des Plaines State Conservation Area in Wilmington, IL (**App. 1, Fig. 2B**). Summaries of population and habitat data for these two populations are provided in **App. 2, Tables 2, 3 and 4**.

Three basal rosettes representing two orchid species were located in May 2012 on the margins of a highly degraded shrubland habitat approximately 500 ft. west of Interstate-55, near Wilmington, IL. Two rosettes were thought to be in the genus *Platanthera* (potentially *Platanthera lacera* [green fringed orchid], with the other rosette possibly *Liparis liliifolia* (twayblade orchid). However, these orchids also could be in other orchid genera (e.g., *Galearis* or *Spiranthes*). The locations for these rosettes were marked with orange flagging to relocate them later in the season. However, on subsequent visits, no individuals could be found, possibly a result of drought-induced dieback. There is the possibility that these rosettes represent one of the several orchids listed as threatened or endangered in Illinois, and efforts will be made during the 2013 growing season to identify these individuals.

Forked Aster Population within the IDOT 2012 Illiana Study Area

Forked aster was found within the IDOT 2012 Illiana Study Area, just west of Wilmington, IL, along the south bluffs (north-facing) of the Kankakee River (**App. 1, Fig. 2B**). This population consisted of 38 small to large colonies (**App. 2, Table 2**), with a continuous to semi-continuous distribution (**App. 1, Fig. 2B**) along a 0.5 mile stretch of the forested bluffs parallel to the Kankakee River. The term colony as used here refers to a grouping of stems separated from other stem groupings by at least an approximate 5 ft. Due to the rhizomatous growth form of this species, it was not possible to determine whether individual colonies represented genets (genetically distinct individuals) or ramets (vegetatively reproduced groupings that share the same root system as other groupings). Combined, these 38 colonies had an estimated 1,149 flowering stems (**App. 2, Table 2**).

This forked aster population occurs in a mosaic of forest habitats with varying levels of natural quality, ranging from very high (grade B to B+) to moderately high (grade C to C+), with a few small, scattered patches of relatively degraded habitat (grade C- to D+). This entire forested area is approximately 7.6 acres (**App. 1, Fig. 2B**) and is discussed in detail in the High Quality Botanical Sites section of this report, identified as **Regionally Noteworthy Botanical Resource Area 1.**

Forked aster colonies were found on drier upper slopes, mesic mid and lower terrace slopes, and forested seep areas along the mid and lower terrace slopes. Colonies of this species were most common on mesic mid terrace slopes and low and mid position seepage areas. Some colonies were very close to the Kankakee River shoreline (**e.g., App. 1, Fig. 3).** Voucher specimens were collected (*Murphy #4834, #5130* & *#5267*) to document occurrences within these various habitats. Associate species were diverse (especially in the drier upland areas which were highly variable) depending on habitat and corresponding natural quality within the habitat, but often included Canada wild ginger (*Asarum canadense*), American bellflower (*Campanula americana*), Pennsylvania oak sedge (*Carex pensylvanica*), nodding fescue (*Festuca obtusa*), Virginia creeper (*Parthenocissus quinquefolia*), common ninebark (*Physocarpus*

opulifolius), great Solomon seal (*Polygonatum commutatum*), common choke cherry (*Prunus virginiana*), swamp buttercup (*Ranunculus septentrionalis*), feathery false Solomon seal (*Smilacina racemosa*), broad-leaved goldenrod (*Solidago flexicaulis*), elm-leaved goldenrod (*S. ulmifolia*), and American basswood (*Tilia americana*). A full list of associate species by habitat type is provided in **App. 2, Table 3**.

Natural History of *Aster furcatus* Burgess (forked aster) ASTERACEAE – State Threatened

Forked aster is a rhizomatous perennial forb that forms colonies and can reach a height of up to 4 ft. (Brouillet 2006). This species has ray flowers up to 15 mm long that are ordinarily white (**App. 1, Fig. 3**) and blooms from late summer to early autumn (Swink and Wilhelm 1994). Forked aster typically is found on moist (often calcium-rich) substrates in semi-open forested habitats, including along streams, terraces, north-facing slopes, and seeps (Brouillet 2006, Yatskievych 2006). A more recent, synonymous scientific name for this species is ***Eurybia furcata* (E. S. Burgess) G. L. Nesom** (Yatskievych 2006).

Forked aster is only known from seven states (Arkansas, Illinois, Indiana, Iowa, Michigan, Missouri, and Wisconsin), and is now believed extirpated from Arkansas (Brouillet 2006). Yatskievych (2006) noted that forked aster was once considered for listing under the Federal Endangered Species Act. Additionally, Les et al. (1991) note that this taxon has a genetic self-incompatibility mechanism, which results in very low seed production if plants are not cross-pollinated. Currently, asexual reproduction through spreading rhizomes is the primary method of reproduction for populations of this species, and this may result in colonies within a population consisting of one to a few genetically distinct individuals (CPC 2013). This may make remaining populations, which Les et al. (1991) estimated to be less than 50, susceptible to further decline (Antonio and Masi 2001).

In Illinois, forked aster is restricted to the northern half of the state and grows in habitats typical of this species (Fell 1955, Jones 1989, Swink and Wilhelm 1994, Herkert and Ebinger 2002). Forked aster was first listed as state threatened in 1989 (IESPB 1989) and this status has not changed to the present. It has been reported from 20 to 23 counties (Jones 1989, Herkert and Ebinger 2002, Kartesz 2013), and is currently believed to be extant in seven northern Illinois counties, including Carroll, Cook, Kane, Lake, La Salle, Ogle, and Will (Herkert and Ebinger 2002, ILLS 2013). The population found within the IDOT 2012 Illiana Study Area has not previously been recorded. An Element Occurrence Record (EOR) for this population has been submitted to the Illinois Department of Natural Resources for inclusion into the Natural Heritage Database.

Ear-leaved Foxglove Population within the IDOT 2012 Illiana Study Area

One population of ear-leaved foxglove was found within the IDOT 2012 Illiana Study Area (**App. 1, Figs. 4 and 5**), located within the IDNR Des Plaines State Conservation Area, in Wilmington, IL (**App. 1, Fig. 2B**). One specimen was collected at this site (*Murphy #5273*) to document the occurrence. This population occurred on the northeast boundary of a wet shrubland habitat (wetland site #237 in the INHS Wetlands Report) and consisted of 14 plants (**App. 2, Table 4**). Wetland site #237 was a degraded, 0.76 acre wet shrubland dominated by sandbar willow (*Salix exigua*), young cottonwood trees (*Populus deltoides*), and reed canary grass* (*Phalaris arundinacea*) (**App. 1, Fig. 5B**). Ear-leaved foxglove individuals occurred in a small area on the northeastern edge of wetland site #237 where this area was more open and not dominated by woody species (i.e., cottonwood and/or sandbar willow) (**App. 1, Fig. 5**).

The small, more open area on the margin of the wet shrubland where ear-leaved foxglove was found, appeared slightly drier than the wet shrubland areas, and had not yet been invaded by woody species.

This is likely due (at least in part) to mowing activities that occur on the margins of the wet shrubland as well as soil moisture differences (or a combination of these variables). No ear-leaved foxglove individuals were found within the densely shaded interior of the wet shrubland, and this is as would be expected for an annual forb requiring conditions that include reduced inter-plant competition as well as increased light levels for seed germination.

Dominant species in this more open area included sawtooth sunflower (*Helianthus grosseseratus*), Canada goldenrod (*Solidago canadensis*) and late goldenrod (*S. gigantea*). In addition to the above-mentioned species, other associates of ear-leaved foxglove included slender false foxglove (*Agalinis tenuifolia*), swamp agrimony (*Agrimonia parviflora*), panicled aster (*Aster simplex*), bur marigold (*Bidens aristosa* var. *retrorsa*), pale dogwood (*Cornus obliqua*), crested oval sedge (*Carex cristatella*), rough avens (*Geum laciniatum*), self-heal (*Prunella vulgaris* var. *elongata*) and poison ivy (*Toxicodendron radicans*). A full list of ear-leaved foxglove associates as well as a comprehensive list of species occurring at wetland site #237, are provided in **App. 2, Table 4**.

Natural History of *Tomanthera auriculata* (Michx.) Raf. (ear-leaved foxglove) SCROPHULARIACEAE – State Threatened

Ear-leaved foxglove is an annual hemiparasite (obtaining a portion of its nutritional requirements from the roots of other plants) that can reach a height of up to 2.5 ft., and has pink to purple tube-shaped flowers (Fernald 1950). This species requires frequent to periodic disturbance to complete its life cycle (Baskin et al. 1991). Disturbances not only reduce direct competition from surrounding plants, but also are likely essential in allowing necessary light to reach seeds in the seed bank by removing leaves from surrounding plants that would otherwise shade and/or filter sunlight, thus preventing seed germination (Baskin et al. 1991). Synonymous scientific names include ***Gerardia auriculata* Michx.** and ***Agalinis auriculata* (Michx.) S. F. Blake** (Fernald 1950, Gleason and Cronquist 1991).

Once widespread throughout a large portion of the eastern half of the United States, this species has been documented from 22 states as well as the District of Columbia, although the known historic and/or current distribution of this species in many states is very limited (only one to a few current and/or historic county records) (Kartesz 2013). It is now presumed extirpated from Michigan, New Jersey, Texas, West Virginia, and the District of Columbia (Voss 1996, CPC 2013, Kartesz 2013). Predominantly a species of prairie and associated habitats, the main center of distribution for ear-leaved foxglove appears to have been the tallgrass prairie region of the central U.S. (Illinois, Iowa, Missouri, eastern Kansas, and portions of southern Minnesota and southern Wisconsin) (Pennell 1935, Kartesz 2013, USDA, NRCS 2013). States with the greatest number of county records reported (but not necessarily substantiated with a voucher specimen) include Iowa (49 counties), Illinois (40 counties), Missouri (34 counties), and Kansas (16 counties) (Kartesz 2013).

In Illinois, ear-leaved foxglove is known from at least 24 counties (Herkert and Ebinger 2002), though estimates range up to 40 (Kartesz 2013). In 2002, there were believed to be over 20 populations occurring in eleven counties (Herkert and Ebinger 2002). Currently (including an EOR submitted for the 2012 Illiana Study Area), there are believed to be 23 populations occurring in 13 counties (INHD 2012). The original collection from which this species was first described was made in Illinois by André Michaux, on 25 August 1795, and was likely collected in what is present-day Wayne County (Pennell 1935).

Populations of this species often fluctuate, and in the absence of the appropriate disturbance regime to facilitate seed germination as well as create environmental conditions conducive to flowering and producing seed, they can become locally extirpated (Herkert and Ebinger 2002). It is not clear exactly

how long seeds of this species can remain viable within the soil seed bank, but Baskin et al. (1991) report that they can remain viable for at least 4 years, and this species may persist at a site in the form of seeds, even though there may be an absence of plants (Baskin et al. 1991). Ear-leaved foxglove was first listed as state threatened in 1990 and this protective status has not changed (IESPB 1990).

High Quality Botanical Sites

Three high quality botanical sites were found within the IDOT Illiana Study Area and include one forested habitat along the bluffs of the Kankakee River (**Regionally Noteworthy Botanical Resource Area 1**), near Wilmington, IL (**App. 1, Fig. 2B**), and two prairie habitats along the Canadian National railroad, in Peotone, IL (**Regionally Noteworthy Botanical Resource Area 2** and **Exceptional Botanical Resource Area 1** (**App. 1, Fig. 2E**). These sites are described in the above listed order beginning with **Regionally Noteworthy Botanical Resource Area 1**, where the state listed ***Aster furcatus*** was located.

Regionally Noteworthy Botanical Resource Area 1 – Forested bluffs (dry-mesic upland forest, mesic upland forest, and forested seep) along Kankakee River, in Wilmington, IL

Located on the northwest side of Wilmington, IL, approximately 0.5 mile west of Interstate-55 and occurring along the south side of the Kankakee River (**App. 1, Fig. 2B**), Regionally Noteworthy Botanical Resource Area 1 (**App. 1, Figs. 6 – 8**) is an intergrading mosaic of habitat types, including dry-mesic upland forest on the drier upper slopes, mesic upland forest on the mid terrace slopes, and forested seep habitats along the mid and lower terrace slopes. Forested seep habitats within this forested complex were relatively small and scattered throughout this entire area. Levels of natural quality varied within this 7.6 acre area, ranging from high (grade B to B+) to moderately high (grade C to C+), with smaller scattered areas (usually immediately adjacent to constructed boat ramps leading down to the Kankakee River and/or individual residences) representing relatively degraded habitat (grade C to D+). Overall, most habitats within this area had high levels of natural quality (in the range of C+ to B-) and were characterized by high species richness of native plants, with a relatively low number and abundance of adventive species (**App. 2, Table 3**). A complete list of all species found within this area, as well as results of the floristic quality assessment (FQA), are provided in **App. 2, Table 3**.

A total of 176 vascular plant species (168 native [95.5%]) and 8 adventive [*] [4.5%]) were observed within this forest complex (**App. 2, Table 3**). Twelve species (7.1%) were conservatives (species having high fidelity to more intact native vegetation communities and typically the first to decrease or disappear when levels of degradation are too high [coefficient of conservatism (C) values of 7 or higher]), and included: the state threatened **forked aster (*Aster furcatus*; C = 9)**, sweet Indian plantain (*Cacalia suaveolens*; C = 10), downy green sedge (*Carex swanii*; C = 8), sharp-lobed hepatica (*Hepatica nobilis* var. *acuta*; C = 7), ostrich fern (*Matteuccia struthiopteris*; C = 9), blunt-leaved sandwort (*Moehringia lateriflora*; C = 7), common ninebark (*Physocarpus opulifolius*; C = 7), three-leaved stonecrop (*Sedum ternatum*; C = 9), yellow pimpernel (*Taenidia integerrima*; C = 7), bellwort (*Uvularia grandiflora*; C = 7), and downy yellow violet (*Viola pubescens*; C = 7) (**App. 2, Table 3**). Additionally, matrix species (species with C values of 4-6 that have high consistency within, and are indicative of, certain community types) represented 58.9% (99 species) of the native flora, and all dominant species within this forested complex were represented by these species (**App. 2, Table 3**).

The native floristic quality index (FQI) for this site was 51.9 (50.7 with adventive species) and the native mean C was 4.0 (3.8 with adventive species) (**App. 2, Table 3**). Results of the floristic quality assessment support the interpretation of a Regionally Noteworthy Botanical Resource Area, and specific

lines of evidence supporting this interpretation include: **1)** the relatively high native FQI (51.9) and native mean C (4.0), **2)** the high diversity of native species and the fact that they represent 95.5% of the flora at this site, **3)** the abundance of, and dominance by, native matrix species, **4)** the presence of a relatively large population of the state threatened **forked aster**, and **5)** the very low percentage of the flora (4.5%) represented by adventive species.

Canopy – Dominant and subdominant canopy species included white oak (*Quercus alba*), bur oak (*Q. macrocarpa*), red oak (*Q. rubra*), black oak (*Q. velutina*), and American basswood (*Tilia americana*). Canopy species that were occasional to common included shagbark hickory (*Carya ovata*), white ash (*Fraxinus americana*), black walnut (*Juglans nigra*), and black cherry (*Prunus serotina*), while species such as green ash (*Fraxinus pennsylvanica* var. *subintegerrima*), blue ash (*F. quadrangulata*), and cottonwood (*Populus deltoides*) were infrequent to rare.

Sub-canopy – Dominant and subdominant sub-canopy species throughout this area included sugar maple (*Acer saccharum*), red oak, American basswood, and American elm (*Ulmus americana*). Occasional to common sub-canopy species included bitternut hickory (*Carya cordiformis*), hackberry (*Celtis occidentalis*), white ash, ironwood (*Ostrya virginiana*), black cherry, black oak, and sassafras (*Sassafras albidum*), while more infrequent to rare species included downy hawthorn (*Crataegus mollis*), black walnut, and red mulberry (*Morus rubra*).

Shrubs and Woody Vines – Twenty-two shrub and 9 woody vine species were recorded (**App. 2, Table 3**). Only a few of these species were common to abundant throughout this area, while most were locally abundant, occasional or rare. Species commonly encountered throughout this area included Virginia creeper (*Parthenocissus quinquefolia*), choke cherry (*Prunus virginiana*), poison ivy (*Toxicodendron radicans*), and bristly green brier (*Smilax hispida*). Species that were abundant in localized areas included false indigo bush (*Amorpha fruticosa*), Amur honeysuckle* (*Lonicera maackii*), yellow honeysuckle (*L. prolifera*), common ninebark, smooth sumac (*Rhus glabra*), bladdernut (*Staphylea trifolia*), and nannyberry (*Viburnum lentago*). Shrubs and woody vines that were occasional throughout this area included American filbert (*Corylus americana*), autumn olive* (*Elaeagnus umbellata*), moonseed (*Menispermum canadense*), pasture rose (*Rosa carolina*), common dewberry (*Rubus flagellaris*), common elder (*Sambucus canadensis*), winter grape (*Vitis cinerea*), and riverbank grape (*V. riparia*). Species that were more infrequent to rare were leather flower (*Clematis pitcheri*), red osier dogwood (*Cornus stolonifera*), wahoo (*Euonymus atropurpureus*) and prickly ash (*Zanthoxylum americanum*) (***see also* App. 2, Table 3**).

Herbaceous Ground Flora – Dominant ground flora species at this site included Pennsylvania oak sedge (*Carex pensylvanica*), feathery false Solomon seal (*Smilacina racemosa*), broad-leaved goldenrod (*Solidago flexicaulis*), and elm-leaved goldenrod (*S. ulmifolia*). Other species that were common to abundant and/or characteristic of the higher quality nature of the dry-mesic (upper slope areas) to mesic (lower and mid terrace slopes) upland forest habitats included: **sedges** – common wood sedge (*Carex blanda*), short-headed sedge (*C. cephalophora*), wood gray sedge (*C. grisea*), curly-styled wood sedge (*C. rosea*), and loose-headed sedge (*C. sparganioides*); **grasses** – woodland brome (*Bromus pubescens*), common wood reed (*Cinna arundinacea*), bottlebrush grass (*Elymus hystrix*), silky wild rye (*E. villosus*), white grass (*Leersia virginica*), and broad-leaved panic grass (*Panicum latifolium*); and **forbs** – hog peanut (*Amphicarpaea bracteata*), spreading dogbane (*Apocynum androsaemilfolium*), wild columbine (*Aquilegia canadensis*), smooth rock cress (*Arabis laevigata*), toothed cress (*A. shortii*), Indian turnip (*Arisaema triphyllum*), side-flowering aster (*Aster lateriflorus*), arrow-leaved aster (*A. sagittifolius*), toothwort (*Dentaria laciniata*), pointed tick trefoil (*Desmodium glutinosum*), Dutchman's breeches (*Dicentra cucullaria*), white snakeroot (*Eupatorium rugosum*), wild licorice (*Galium circaezans*), shining

bedstraw (*G. concinnum*), wild geranium (*Geranium maculatum*), woodland sunflower (*Helianthus divaricatus*), Virginia waterleaf (*Hydrophyllum virginianum*), blue lettuce (*Lactuca floridana*), thicket parsley (*Perideridia americana*), blue phlox (*Phlox divaricata*), Jacob's ladder (*Polemonium reptans*), great Solomon seal (*Polygonatum commutatum*), lion's foot (*Prenanthes alba*), bloodroot (*Sanguinaria canadensis*), early figwort (*Scrophularia lanceolata*), starry campion (*Silene stellata*), starry false Solomon seal (*Smilacina stellata*), upright carrion flower (*Smilax ecirrhata*), purple meadow parsnip (*Thaspium trifoliatum*), red trillium (*Trillium recurvatum*), and Culver's root (*Veronicastrum virginicum*) (***see also* App. 2, Table 3**).

Species characteristic of seep habitats (and sometimes restricted to these habitats), included: **shrubs** - false indigo bush, red osier dogwood, and common ninebark, American filbert; and **herbaceous ground flora** – **forked aster**, sweet Indian plantain, green-headed fox sedge (*Carex conjuncta*), common wood reed, honewort (*Cryptotaenia canadensis*), common horsetail (*Equisetum arvense*), marsh fleabane (*Erigeron philadelphicus*), sneezeweed (*Helenium autumnale*), Virginia waterleaf, spotted touch-me-not (*Impatiens capensis*), pale touch-me-not (*I. pallida*), Canada wood nettle (*Laportea canadensis*), white grass, sensitive fern (*Onoclea sensibilis*), reed canary grass* (*Phalaris arundinacea*), swamp buttercup (*Ranunculus septentrionalis*), wild golden glow (*Rudbeckia laciniata*), cup plant (*Silphium perfoliatum*), broad-leaved goldenrod, late goldenrod (*Solidago gigantea*), smooth hedge nettle (*Stachys tenuifolia*), tall nettle (*Urtica dioica*), white vervain (*Verbesina urticifolia*), and golden Alexanders (*Zizia aurea*) (***see also* App. 2, Table 3**).

<u>Regionally Noteworthy Botanical Resource Area 2 – Grade C+ to B- dry-mesic prairie/mesic prairie (Prairie Site 3 in Peotone, IL)</u>

Located on the east side of Peotone, IL, and occurring on the west side of, and parallel to, the Canadian National (CN) railroad (**App. 1, Fig. 2E**), Regionally Noteworthy Botanical Resource Area 2 was an intergrading dry-mesic to mesic remnant prairie habitat that totaled approximately 0.37 acres (**App. 1, Fig. 2E; Figs. 9 and 10**). Though very small, this prairie habitat possessed a noteworthy assemblage of vascular plant species, and retained a high degree of native character (Grade C+ to B-). Additionally, the **Eryngium Stem Borer Moth (*Papaipema eryngii*)** was found within this remnant habitat during 2012 entomology surveys. Although several segments of native prairie habitat occurred within the survey limits along and parallel to this active railroad line (***see* App. 1, Fig. 2E**), Prairie Site 3 was one of the higher quality portions.

A total of 105 vascular plant species (91 native [86.7%] and 14 adventive [*] [13.3%]) were observed at this site during 2012 surveys (**App. 2, Table 5**). Ten species (11%) at this site were conservatives, and included: leadplant (*Amorpha canescens*; C = 8), candle anemone (*Anemone cylindrica*; C = 8), prairie milkweed (*Asclepias sullivantii*; C = 7), green milkweed (*A. viridiflora*; C = 9), purple prairie clover (*Dalea purpurea*; C = 8), rattlesnake master (*Eryngium yuccifolium*; C = 7), rough blazing star (*Liatris apsera*; C = 7), wild quinine (*Parthenium integrifolium*; C = 8), sand prairie phlox (*Phlox pilosa*; C = 7), and Riddell's goldenrod (*Solidago riddellii*; C = 7) (**App. 2, Table 5**). Matrix species represented 51.6% (47 species) of the native flora, and all dominant species at this site were represented by these species (**App. 2, Table 5**). Native ruderal species (those with C values of 0-3 and often associated with areas that have been degraded) represented 37.4% (34 species) of the native flora. The native FQI for this site was 38.1 (35.4 with adventive species) and the native mean C was 4.0 (3.5 with adventive species) (**App. 2, Table 5**).

Results of the FQA support the interpretation of a Regionally Noteworthy Botanical Resource Area, and specific lines of evidence supporting this interpretation include: **1)** the high diversity of native species (n=

91) at this site, **2)** the relatively high native FQI for a small area and native mean C (38.1 and 4.0, respectively), **3)** the high number of conservative species at this site (11% of native flora) as well as their high abundance values, **4)** the relatively low number of adventive species (13.3 % of total flora) and their low abundance values, and **5)** the high number of matrix species at this site (51.6% of native flora) and the dominant species being represented by these. Additionally, these results are further meaningful when considering the very small area (0.37 acres) represented by this remnant habitat.

Dominant species at this site included big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), and rigid goldenrod (*Solidago rigida*) (**App. 2, Table 5**). Species that were indicators of native prairie habitat and ranged in relative abundance from very abundant to common (***see*** **App. 2, Table 5**), included: leadplant, candle anemone, heath aster (*Aster ericoides*), prairie coreopsis (*Coreopsis palmata*), purple prairie clover, showy tick trefoil (*Desmodium canadense*), rattlesnake master, prairie sunflower (*Helianthus rigidus*), round-headed bush clover (*Lespedeza capitata*), rough blazing star, wild quinine, common mountain mint (*Pycnanthemum virginianum*), yellow coneflower (*Ratibida pinnata*), rosin weed (*Silphium integrifolium*), compass plant (*S. laciniatum*), prairie dock (*S. terebinthinaceum*), Indian grass (*Sorghastrum nutans*), and golden Alexanders (*Zizia aurea*).

Other prairie indicator species that were occasional included prairie milkweed, butterfly milkweed (*Asclepias tuberosa* var. *interior*), green milkweed, false toad-flax (*Comandra umbellata*), prairie blazing star (*Liatris pycnostachya*), hoary puccoon (*Lithospermum canescens*), prairie sundrops (*Oenothera pilosella*), smooth phlox (*Phlox glaberrima* subsp. *interior*), sand prairie phlox, obedient plant (*Physostegia virginiana*), common blue-eyed grass (*Sisyrinchium albidum*), and Culver's root (*Veronicastrum virginicum*) (***see also*** **App. 2, Table 5**).

The two most immediately apparent threats to this remnant habitat are invasive adventive species and woody species encroachment (including native and adventive woody species). With respect to herbaceous species, most of the adventive species present at this site were not particularly abundant (although some were present), but many of these are known to be highly invasive and their populations may increase. Habitats immediately east and west of this site (narrow segments of habitat bordering railroad ballast and agricultural land, respectively [***see*** **App. 1, Fig. 2E**]), harbored the greatest concentrations of many of these adventive species. Adventive species likely to spread and eventually displace native vegetation at this site include Hungarian brome (*Bromus inermis*), cut-leaved teasel (*Dipsacus laciniatus*), tall fescue (*Festuca arundinacea*), white sweet clover (*Melilotus alba*), wild parsnip (*Pastinaca sativa*), and Canadian and Kentucky bluegrass (*Poa compressa* and *P. pratensis*).

With respect to woody species encroachment, which leads to woody species shading and outcompeting the native prairie vegetation, the biggest threats to this remnant habitat are the non-native species showy fly honeysuckle (*Lonicera* X *bella*), amur honeysuckle (*L. maackii*), multiflora rose (*Rosa multiflora*), and common buckthorn (*Rhamnus cathartica*). Native woody species that are also a threat to this remnant prairie include black cherry (*Prunus serotina*), wafer ash (*Ptelea trifoliata*), black raspberry (*Rubus occidentalis*), and riverbank and frost grape (*Vitis riparia* and *V. vulpina*).

<u>Exceptional Botanical Resource Area 1 – Grade B to B+ dry-mesic prairie/mesic prairie (Prairie Site 1 in Peotone, IL)</u>

As with Prairie Site 3 (discussed above), Exceptional Botanical Resource Area 1 (Prairie Site 1) was also located on the east side of Peotone, IL, and occurred on the west side of, and parallel to, the Canadian National (CN) railroad (**App. 1, Fig. 2E; Figs. 11 and 12**). Exceptional Botanical Resource Area 1 was an intergrading dry-mesic to mesic remnant prairie habitat that totaled approximately 0.2 acres (**App. 1,**

Fig. 2E), and within survey limits, was the highest quality prairie remnant along this railroad line. Prairie Site 1 was another location where the **Eryngium Stem Borer Moth (*Papaipema eryngii*)** was found during 2012 entomology surveys. This prairie habitat possessed a highly noteworthy assemblage of vascular plant species, and may have qualified as a Category 1 INAI site if the size criterion of 0.25 acres or greater were met.

Within this area, a total of 98 species were observed, with 90 (91.8%) native species and 8 (8.2%) adventive species (*) (**App. 2, Table 6**). Of the 90 native species observed, an exceptionally high percentage 21% (19 species) were conservatives and included: leadplant (*Amorpha canescens*; C = 8), candle anemone (*Anemone cylindrica*; C = 8), prairie milkweed (*Asclepias sullivantii*; C = 7), green milkweed (*Asclepias viridiflora*; C = 9), sky-blue aster (*Aster azureus*; C = 7), cream wild indigo (*Baptisia leucophaea*; C = 9), Bicknell's sedge (*Carex bicknellii*; C = 8), white prairie clover (*Dalea candida*; C = 9), purple prairie clover (*D. purpurea*; C = 8), rattlesnake master (*Eryngium yuccifolium*; C = 7), closed gentian (*Gentiana andrewsii*; C = 7), stiff gentian (*Gentianella quinquefolia* var. *occidentalis*; C = 7), rough blazing star (*Liatris aspera*; C = 7), wild quinine (*Parthenium integrifolium*; C = 8), sand prairie phlox (*Phlox pilosa*; C = 7), rough white lettuce (*Prenanthes aspera*; C = 8), scurfy-pea (*Psoralea tenuiflora*; C = 8), showy goldenrod (*Solidago speciosa*; C = 7), and prairie dropseed (*Sporobolus heterolepis*; C = 9) (**App. 2, Table 6**).

Matrix species represented a significant portion of the flora at this site (46.7% [42 species]), while native ruderal species represented 32.2% (29 species) of the flora (**App. 2, Table 6**).

The native floristic quality index (FQI) for this site was 42.6 (40.8 with adventive species) and the native mean C was 4.5 (4.1 with adventive species) (**App. 2, Table 6**). Considering the very small area represented by this remnant prairie habitat (0.2 acres), the native FQI and native mean C for this site are exceptionally high. Results of the floristic quality assessment support the interpretation of an Exceptional Botanical Resource Area, and specific lines of evidence supporting this interpretation include: **1)** the high FQI and native mean C, **2)** the high diversity of native species (n = 90) within this very small remnant, **3)** the high percentage (21%) of the total observed flora represented by conservative species, **4)** the dominant and subdominant species being represented by conservative and/or matrix species, and **5)** the relatively low number of adventive species and their low abundance values.

Dominant and subdominant species at this site included leadplant, little bluestem (*Schizachyrium scoparium*), compass plant (*Silphium laciniatum*), prairie dock (*S. terebinthinaceum*), rigid goldenrod (*Solidago rigida*), and prairie dropseed. Of these, leadplant and prairie dropseed were dominants in small to relatively large localized areas, while other dominants were more uniformly distributed throughout the site. Other prairie indicator species present at this site, with relative abundances ranging from occasional to abundant (***see also* App. 2, Table 6**) included: heath aster (*Aster ericoides*), false toadflax (*Comandra umbellata*), prairie coreopsis (*Coreopsis palmata*), showy tick trefoil (*Desmodium canadense*), prairie sunflower (*Helianthus rigidus*), round-headed bush clover (*Lespedeza capitata*), prairie blazing star (*Liatris pycnostachya*), hoary puccoon (*Lithospermum canescens*), prairie sundrops (*Oenothera pilosella*), obedient plant (*Physostegia virginiana*), common mountain mint (*Pycnanthemum virginianum*), rosin weed (*Silphium integrifolium*), common blue-eyed grass (*Sisyrinchium albidum*), Indian grass (*Sorghastrum nutans*), porcupine grass (*Stipa spartea*), and Culver's root (*Veronicastrum virginicum*).

The biggest threats to this remnant prairie are invasive adventive species (as well as the native Canada goldenrod [*Solidago canadensis*]) and woody species encroachment (including native and non-native species). With respect to herbaceous species, although the number of adventive species (as well as their corresponding relative abundance values) was low, several of these species are known to be invasive and

can out-compete native vegetation. Higher concentrations of some of these species occurred east and west of this prairie remnant, where the railroad ballast and agricultural land occurred, respectively, and included wild parsnip (*Pastinaca sativa*) and reed canary grass (*Phalaris arundinacea*), and to a lesser extent, Queen Anne's lace (*Daucus carota*).

Adventive woody species that were most abundant in areas adjacent to this remnant prairie, and pose one of the largest threats to this habitat due to their tendency to rapidly spread, included showy fly honeysuckle (*Lonicera* X *bella*), amur honeysuckle (*L. maackii*), and common buckthorn (*Rhamnus cathartica*). Native woody species that were also beginning to encroach into this habitat included cock-spur hawthorn (*Crataegus crus-galli*), downy hawthorn (*C. mollis*), wild black cherry (*Prunus serotina*), wafer ash (*Ptelea trifoliata*), and American elm (*Ulmus americana*). In the absence of a fire regime, fire-dependent communities such as prairies are much more susceptible to invasion by woody species.

Native Vegetation Community Descriptions

Prairie

The non-wetland prairie cover-type comprised 14.5 acres (0.09%) of the IDOT Illiana Study Area, and was represented by 18 sites within the study area (Sites 1 – 12, & 19 [**App. 1, Fig. 2E**]; Sites 13 – 17 [**App. 1, Fig. 2B**]). One prairie (Site 18 [Wetland Site 264; 0.63 acres]) was a degraded wet prairie and is discussed in the INHS wetlands report. In total, 19 prairie sites occurred in the study area (18 non-wetland prairie sites and one wetland prairie site [total prairie acreage = 15.1 acres]).

Many of the non-wetland prairie sites were very close to one another, separated by overgrown and/or completely degraded areas, and historically would have been part of the same prairie habitat. Non-wetland prairie community types included: dry-mesic/mesic prairie (Sites 1, 3, 4 – 12, & 19), mesic/wet-mesic prairie/sedge meadow complex (Site 2 [including sedge meadow Wetland Site 59]), dry-mesic sand prairie (Sites 13, 14 & 15), dry/dry-mesic/mesic sand prairie (Site 16), and mesic sand prairie (Site 17). Prairie Site 1 (**Exceptional Botanical Resource Area 1**) and Prairie Site 3 (**Regionally Noteworthy Botanical Resource Site 2**) are discussed in detail in the above section pertaining to High Quality Botanical Sites.

Dry-mesic/Mesic Prairie

Dry-mesic to mesic prairie habitats comprised 3.8 acres (26.2%) of the total non-wetland prairie acreage (14.5 acres) within the IDOT Illiana Study Area, and were located parallel to the Canadian National (CN) railroad and/or IL Route 50, in Peotone, IL (***see* App. 1, Fig. 2E**). Two sites possessed high levels of natural quality, and are included in the High Quality Botanical Sites section of this report, with Prairie Site 1 (grade B to B+ dry-mesic/mesic prairie [0.2 acres]) recognized as an Exceptional Botanical Resource Area, and Prairie Site 3 (grade C+ to B- dry-mesic/mesic prairie [0.37 acres]) recognized as a Regionally Noteworthy Botanical Resource Area. The remaining sites were grade C remnants (Sites 4, 5, 6, 7, 8, & 19) and grade C- to D+ remnants (Sites 9, 10, 11 & 12) (**App. 1, Fig. 2E**).

- Grade C Dry-mesic/Mesic Prairie (**Prairie Sites 4, 5, 6, 7, 8, & 19**)

Prairie Sites 4, 5, 6, 7, 8, & 19 occurred along the east and west sides of the CN railroad and along the west side of IL Route 50, in Peotone, IL (**App. 1, Fig. 2E; Figs. 13 and 14**). The total area for these six sites was 1.27 acres, and sites on the west side of IL Route 50 (Prairie Sites 7 & 8) are part of roadside

prairie #39 in Handel and Koontz (2004). All of these grade C prairie remnants possessed a noteworthy assemblage of native prairie species (**App. 2, Table 7**).

A total of 125 species were observed at these sites (all sites combined), with 103 (82.4%) native species and 22 (17.6%) adventive species (**App. 2, Table 7**). Of the 103 native species observed, nine were conservatives, and included: leadplant (*Amorpha canescens*; C = 8), candle anemone (*Anemone cylindrica*; C = 8), prairie milkweed (*Asclepias sullivantii*; C = 7), purple prairie clover (*Dalea purpurea*; C = 8), rattlesnake master (*Eryngium yuccifolium*; C = 7), rough blazing star (*Liatris aspera*; C = 7), wild quinine (*Parthenium integrifolium*; C = 8), sand prairie phlox (*Phlox pilosa*; C = 7), and glaucous white lettuce (*Prenanthes racemosa*; C = 8) (**App. 2, Table 7**). With the exception of rough blazing star, which was common to abundant in several areas, the remaining conservative species were rare to occasional within these habitats (**App. 2, Table 7**), underscoring the more degraded condition of these prairie remnants.

Matrix species, which included numerous prairie indicators, represented a significant portion of the flora at these sites (46.6% [48 species]). Nearly all of the dominant species in these habitats were matrix species, and included: big bluestem (*Andropogon gerardii*), prairie sunflower (*Helianthus rigidus*), little bluestem (*Schizachyrium scoparium*), prairie dock (*Silphium terebinthinaceum*), and rigid goldenrod (*Solidago rigida*). Other occasional to commonly encountered matrix species that were also prairie indicator species within these habitats, included: heath aster (*Aster ericoides*), willow aster (*A. praealtus*), false toadflax (*Comandra umbellata*), prairie coreopsis (*Coreopsis palmata*), tall coreopsis (*C. tripteris*), showy tick trefoil (*Desmodium canadense*), round-headed bush clover (*Lespedeza capitata*), prairie blazing star (*Liatris pycnostachya*), hoary puccoon (*Lithospermum canescens*), lance-leaved loosestrife (*Lysimachia lanceolata*), prairie sundrops (*Oenothera pilosella*), prairie switch grass (*Panicum virgatum*), rosin weed (*Silphium intergrifolium*), compass plant (*S. laciniatum*), Indian grass (*Sorghastrum nutans*), porcupine grass (*Stipa spartea*), Culver's root (*Veronicastrum virginicum*), and golden Alexanders (*Zizia aurea*) (***see also* App. 2, Table 7**).

Native ruderal species represented a large percentage of the native flora at these sites 44.7% (46 species), and many of these species were common. This percentage of native ruderal species (44.7%) as well as the high number of species representing adventives (17.6%), underscores the more degraded condition of these remnant prairie habitats.

The above results, highlighted in the FQA (**App. 2, Table 7**), support the interpretation of remnant prairie habitats that are moderately to highly degraded, but still possess a noteworthy level of native character. The native FQI for these five sites combined was 37.6 (34.2 with adventive species) and the native mean C was 3.7 (3.1 with adventive species) (**App. 2, Table 7**), also supporting the interpretation of grade C remnant prairie habitats.

- Grade C- to D Dry-mesic/Mesic Prairie (**Prairie Sites 9, 10, 11 & 12**)

Prairie Sites 9, 10, 11 & 12 occurred south of Kennedy-Kentucky Road (just south of Prairie Sites 4 – 8; discussed above) along the east and west sides of the CN railroad and along the west side of IL Route 50, in Peotone, IL (**App. 1, Figs. 2E and 15**). The total area for these four sites was 1.95 acres, and sites on the west side of IL Route 50 (Prairie Sites 11 & 12) are part of roadside prairie #39 in Handel and Koontz (2004). All of these remnants were highly degraded and possessed limited amounts of native character and diversity.

A total of 77 species were observed at these four sites combined, with 62 (80.5%) native species and 15 (19.5%) adventive species (**App. 2, Table 8**). Of the 62 native species observed, only five (8.1%) were conservatives, and included: leadplant (*Amorpha canescens*; C = 8), prairie milkweed (*Asclepias sullivantii*; C = 7), rough blazing star (*Liatris aspera*; C = 7), wild quinine (*Parthenium integrifolium*; C = 8), and showy goldenrod (*Solidago speciosa*; C = 7) (**App. 2, Table 8**). With the exception of rough blazing star, which was occasional, the remaining conservative species were rare within these habitats (**App. 2, Table 8**).

Matrix species included several prairie indicator species, but represented a relatively small portion of the flora at these sites (37.1% [23 species]). Only two of the dominant species in these habitats were matrix species, and included: prairie sunflower (*Helianthus rigidus*) and rigid goldenrod (*Solidago rigida*) (**App. 2, Table 8**). Other matrix species characteristic of these habitats that were relatively common included: big bluestem (*Andropogon gerardii*), wild bergamot (*Monarda fistulosa*), prairie switch grass (*Panicum virgatum*), yellow coneflower (*Ratibida pinnata*), little bluestem (*Schizachyrium scoparium*), rosin weed (*Silphium integrifolium*), prairie dock (*S. terebinthinaceum*), and Indian grass (*Sorghastrum nutans*) (**App. 2, Table 8**).

Native ruderal species comprised a large percentage of the native flora at these sites (54.8% [34 species]), and many of these species were common to abundant (**App. 2, Table 8**), with two species, Canada goldenrod (*Solidago canadensis*) and rough dropseed (*Sporobolus asper*), dominants in many areas. This high percentage of native ruderal species, their dominance and/or relative abundance, as well as the high number of species representing adventives (19.5%), underscores the more degraded condition of these remnant prairie habitats.

The above results, highlighted in the FQA (**App. 2, Table 8**), support the interpretation of remnant prairie habitats that are highly degraded. The native FQI for these four sites combined was 25.0 (22.5 with adventive species) and the native mean C was 3.2 (2.6 with adventive species) (**App. 2, Table 8**), also supporting the interpretation of grade C- to D remnant prairie habitats.

Mesic Prairie/Wet-mesic Prairie/Sedge Meadow

- Grade C mesic/wet-mesic prairie/sedge meadow (intergrading complex) (**Prairie Site 2**)

Prairie Site 2 was the only area representing mesic to wet-mesic prairie/sedge meadow habitat, and was characterized by an intergrading mosaic of mesic prairie and wet-mesic prairie habitat, as well as sedge meadow habitat (**App. 1, Figs. 2E, 16 and 17**). The northern portion of this site was represented by sedge meadow habitat (Wetland Site 59), while the southern portion was represented by mesic to wet-mesic prairie. In the center portion of this site, these two community types intergraded with an abundance of both grasses and sedges. Prairie Site 2 was located on the west side of the CN railroad (in between Prairie Site 1 and 3), in Peotone, IL (**App. 1, Fig. 2E**). The total acreage for this area was 0.5 acres (Wetland Site 59 representing 0.24 acres of this). Though moderately to highly degraded, this remnant prairie still possessed a noteworthy level of natural quality as well as assemblage of vascular plant species.

This area was relatively diverse and a total of 75 species were observed during surveys, with 70 (93.3%) native species and 5 (6.7%) adventive species (**App. 2, Table 9**). Of the 70 native species observed, only four were conservatives, and included: prairie milkweed (*Asclepias sullivantii*; C = 7), narrow-leaved loosestrife (*Lysimachia quadriflora*; C = 8), cowbane (*Oxypolis rigidor*; C = 7), and Riddell's goldenrod (*Solidago riddellii*; C = 7) (**App. 2, Table 9**). Of these, cowbane was occasional, but prairie milkweed

and narrow-leaved loosestrife were relatively common, and Riddell's goldenrod was a community dominant/subdominant in portions of this site (**App. 2, Table 9**).

The dominant species within the sedge meadow habitat was tussock sedge (*Carex stricta*), with subdominants including Indian hemp (*Apocynum sibiricum*) and American bindweed (*Calystegia sepium*) (**App. 2, Table 9**). Dominant species in areas representing mesic/wet-mesic prairie habitats included big bluestem (*Andropogon gerardii*), sawtooth sunflower (*Helianthus grosseserratus*), common mountain mint (*Pycnanthemum virginianum*), and Riddell's goldenrod (**App. 2, Table 9**).

Matrix species comprised a large percentage of the flora at this site (51.4% [36 species]), which supports the interpretation of a remnant community that still possesses a noteworthy level of native character. Additionally, several of the dominant species were represented by matrix species, including: big bluestem, tussock sedge and common mountain mint (**App. 2, Table 9**). Other matrix species characteristic of this area that ranged from occasional to common, included: swamp milkweed (*Asclepias incarnata*), willow aster (*Aster praealtus*), woolly sedge (*Carex lanuginosa*), running marsh sedge (*C. sartwellii*), brown fox sedge (*C. vulpinoidea*), water hemlock (*Cicuta maculata*), showy tick trefoil (*Desmodium canadense*), smooth scouring rush (*Equisetum laevigatum*), wild madder (*Galium obtusum*), round-fruited St. John's wort (*Hypericum sphaerocarpum*), lance-leaved loosestrife (*Lysimachia lanceolata*), winged loosestrife (*Lythrum alatum*), prairie sundrops (*Oenothera pilosella*), smooth phlox (*Phlox glaberrima* subsp. *interior*), obedient plant (*Physostegia virginiana*), compass plant (*Silphium laciniatum*), prairie dock (*S. terebinthinaceum*), prairie cord grass (*Spartina pectinata*), and golden Alexanders (*Zizia aurea*) (***see also*** **App. 2, Table 9**).

Native ruderal species also comprised a large percentage of the native flora at this site 42.9% (30 species), and many of these species were common. This percentage of native ruderal species as well as the relatively high abundance values associated with many, are indicative of a grade C (moderately to highly degraded) remnant community.

The above highlighted results, summarized in the FQA (**App. 2, Table 9**), support the interpretation of remnant prairie habitats that are moderately to highly degraded, but still possess a noteworthy level of native character. The native FQI for this site was 30.5 (29.4 with adventive species) and the native mean C was 3.6 (3.4 with adventive species) (**App. 2, Table 9**), also supporting the interpretation of grade C remnant community

Dry-mesic Sand Prairie

Dry-mesic sand prairie habitats comprised 3.7 acres (24.7%) of the total prairie acreage within the IDOT Illiana Study Area. Prairie sites 13, 14 & 15 represented this community type and were located west of Wilmington, IL (**App. 1, Fig. 2B**). Site 13 occurred just north of Strip Mine Road (**App. 1, Fig. 2B**), and sites 14 & 15 were located along Interstate-55 (**App. 1, Fig. 2B**). The composition of Prairie Site 13 was very different from Prairie Sites 14 & 15, and is discussed separately. Additionally, Prairie Site 15 was very small (0.10 acre), in close proximity to Prairie Site 14, and had a very similar species composition as Prairie Site 14; for these reasons, Prairie Sites 14 & 15 will be discussed together, below.

- Grade C- to D+ Dry-mesic Sand Prairie (**Prairie Site 13**)

Prairie Site 13 was 0.36 acres (including a small portion [0.06 acres] of Wetland Site 335) and was located approximately 0.4 mile north of Strip Mine Road and 0.2 mile east of IL Route 129 (**App. 1, Figs.**

2B and 18). This remnant habitat was highly degraded. Several small, moist depressions occurred within this area (possibly anthropogenic in origin), but the prevailing moisture class here was dry-mesic.

Sixty species were observed at this site, with 48 (80%) native species and 12 (20%) adventive species (**App. 2, Table 10**). Of the 48 native species, only three (6.3%) were conservatives, and included: round-shouldered oval sedge (*Carex longii*; C = 8), rough blazing star (*Liatris aspera*; C = 7), and brown beak rush (*Rhynchospora capitellata*; C = 10) (**App. 2, Table 10**). With the exception of rough blazing star, which was somewhat common, the remaining two conservative species were rare to occasional.

The most dominant species at this site were broom sedge (*Andropogon virginicus*) and old-field goldenrod (*Solidago nemoralis*); big bluestem (*Andropogon gerardii*), poverty oat grass (*Danthonia spicata*) and Indian grass (*Sorghastrum nutans*) were locally dominant. Species frequent within the scattered, small mesic to wet-mesic depressions included late boneset (*Eupatorium serotinum*), grass-leaved goldenrod (*Euthamia graminifolia*), common rush (*Juncus effusus* var. *solutus*), fall panicum (*Panicum dichotomiflorum*), reed canary grass* (*Phalaris arundinacea*), and wool grass (*Scirpus cyperinus*).

Matrix species comprised a relatively small portion of the flora at this site (41.7% [20 species]). Only two species that were locally dominant at this site represented matrix species, and included: big bluestem and Indian grass (**App. 2, Table 10**). Other matrix species that were indicators of remnant prairie habitat – most of which ranged from rare to occasional, included: tall green milkweed (*Asclepias hirtella*), slender sand sedge (*Cyperus filiculmis*), hairy hawkweed (*Hieracium gronovii*), fall witch grass (*Leptoloma cognatum*), round-headed bush clover (*Lespedeza capitata*), field milkwort (*Polygala sanguinea*), little bluestem (*Schizachyrium scoparium*), small wild bean (*Strophostyles leiosperma*), and arrow-leaved violet (*Viola sagittata*) (**App. 2, Table 10**).

A large percentage of the native flora at this site was comprised of native ruderals 52.1% (25 species), and many of these species were common to abundant (**App. 2, Table 10**), with broom sedge, poverty oat grass, and old-field goldenrod dominant (or locally dominant). This high percentage and abundance of native ruderal species as well as adventive species (20%), underscores the degraded condition of this remnant prairie habitat (combined, representing 72 % of the flora).

The above results, summarized in the FQA (**App. 2, Table 10**), support the interpretation of a remnant prairie habitat that is highly degraded. The native FQI was 22.4 (20.0 with adventive species) and the native mean C was 3.2 (2.6 with adventive species) (**App. 2, Table 10**), also supporting the interpretation of grade C- to D+ remnant prairie.

- Grade C- to D Dry-mesic Sand Prairie (**Prairie Sites 14 & 15**)

Prairie Sites 14 & 15 totaled 3.4 acres (3.3 acre and 0.1 acre, respectively) of grade C- to D+ dry-mesic sand prairie, and occurred along Interstate-55 approximately 2.5 miles west of Wilmington, IL (**App. 1, Figs. 2B and 19**). Prairie Site 14 was located inside the large median between the northbound and southbound lanes of Interstate-55, while Prairie Site 15 was located slightly south of site 14, on the east side of Interstate-55 (**App. 1, Fig. 2B**). These remnant habitats were highly degraded but still had species compositions indicative of remnant prairie habitats.

A total of 66 species were observed at these sites, with 53 (80.3%) native species and 13 (19.7%) adventive species (*) (**App. 2, Table 11**). Of the 53 native species observed, a relatively high percentage (15.1% [8 species]) were conservatives, and included: downy green sedge (*Carex swanii*; C = 8), downy

sunflower (*Helianthus mollis*; C = 7), marsh blazing star (*Liatris spicata*; C = 7), wild quinine (*Parthenium integrifolium*; C = 8), purple milkwort (*Polygala polygama* var. *obtusata*; C = 7), tall nut grass (*Scleria triglomerata*; C = 9), showy goldenrod (*Solidago speciosa*; C = 7), and lance-leaved violet (*Viola lanceolata*; C = 7) (**App. 2, Table 11**). Only two of these species, downy sunflower and wild quinine, were relatively common. The remaining conservative species were rare to occasional.

Dominant and sub-dominant (or locally dominant) herbaceous species in these habitats included broom sedge (*Andropogon virginicus*), flowering spurge (*Euphorbia corollata*), Kentucky blue grass* (*Poa pratensis*), and Canada goldenrod (*Solidago canadensis*). However, the most dominant species within these areas (especially for site 14) were adventive shrubs and/or small trees that were heavily encroaching into these prairie habitats (***see* App. 1, Figure 19A**). These included: autumn olive* (*Elaeagnus umbellata*), showy fly honeysuckle* (*Lonicera* X *bella*), amur honeysuckle* (*L. maackii*), Japanese crab* (*Malus sieboldii*), and Scotch pine* (*Pinus sylvestris*). Native species that were also encroaching into these prairie habitats included: gray dogwood (*Cornus racemosa*), eastern red cedar (*Juniperus virginiana*), wild black cherry (*Prunus serotina*), black oak (*Quercus velutina*), smooth sumac (*Rhus glabra*) and Yankee blackberry (*Rubus pensylvanicus*).

Matrix species, including several prairie indicator species, comprised a small portion of the observed flora at this site (37.7% [20 species]). None of the dominants were matrix species, which further supports the interpretation of a degraded (grade C to D+) habitat.

Matrix species that were indicators of remnant prairie habitat and ranged from occasional to somewhat common, included: pussy toes (*Antennaria plantaginifolia*), tall green milkweed (*Asclepias hirtella*), heath aster (*Aster ericoides*), plains oval sedge (*Carex brevior*), false toad-flax (*Comandra umbellata*), tall coreopsis (*Coreopsis tripteris*), round-headed bush clover (*Lespedeza capitata*), prairie switch grass (*Panicum virgatum*), slender mountain mint (*Pycnanthemum tenuifolium*), little bluestem (*Schizachyrium scoparium*), early goldenrod (*Solidago juncea*), and Indian grass (*Sorghastrum nutans*) (**App. 2, Table 11**).

Twenty-five species (47.2%) were native ruderals; and many of these were common to abundant (**App. 2, Table 11**), and three species, including broom sedge, flowering spurge and Canada goldenrod, were dominants. This high percentage of common to abundant native ruderal species, as well as adventive species (19.7%), underscores the highly degraded condition of this remnant prairie habitat (combined, representing 67% of the flora).

The native FQI (both sites combined) was 26.1 (23.4 with adventive species) and the native mean C was 3.6 (2.9 with adventive species) (**App. 2, Table 11**), also supporting the interpretation of grade C- to D+ remnant prairie.

- Grade C- to D+ Dry/Dry-mesic/Mesic Sand Prairie (**Prairie Site 16**)

Prairie Site 16 was 2.2 acres and occurred west of Wilmington, IL, approximately 0.4 mile north of Strip Mine Road and 0.3 mile east of IL Route 129 (**App. 1, Figs. 2B, 20 and 21**). This area had variable topography and consequently, moisture classes (dry/dry-mesic/mesic), and intergrading habitats included dry sand prairie on the crests of the sand dunes, dry-mesic sand prairie in the higher elevation areas below the crests, and mesic sand prairie in the lower elevation areas. Past grazing degraded mesic zones but evidently was less intense in drier zones where the eastern prickly pear cactus (*Opuntia humifusa*) was common.

Eighty species were observed at this site, with 67 (83.7%) native species and 13 (16.3%) adventive species (*) (**App. 2, Table 12**). Of the 67 native species, 11.9% [8 species]) were conservatives and included: sand milkweed (*Asclepias amplexicaulis*; C = 7), green milkweed (*A. viridiflora*; C = 9), round-shouldered oval sedge (*Carex longii*; C = 8), downy green sedge (*Carex swanii*; C = 8), common rockrose (*Helianthemum canadense*; C = 7), marsh vetchling (*Lathyrus palustris*; C = 7), rough blazing star (*Liatris aspera*; C = 7), and hairy puccoon (*Lithospermum caroliniense*; C = 7) (**App. 2, Table 12**). However, of these species, only rough blazing star was relatively common, while the remaining conservative species were rare to occasional.

Dominant and sub-dominant herbaceous species in these habitats included: fall witch grass (*Leptoloma cognatum*), eastern prickly pear cactus, white-haired panic grass (*Panicum villosissimum*), and Kentucky blue grass* (*Poa pratensis*) (**App. 2, Table 12**). Species that were dominant in localized areas (small to relatively large areas) included: Pennsylvania oak sedge (*Carex pensylvanica*), viscid grass-leaved goldenrod (*Euthamia gymnospermoides*), Yankee blackberry (*Rubus pensylvanicus* – a species that was invading a large portion of this area), sandbar willow (*Salix exigua*), and Canada goldenrod (*Solidago canadensis*) (**App. 2, Table 12**).

A relatively small portion of the observed flora at this site (37.3% [25 species]) was comprised of matrix species, including: forked-tip three awn grass (*Aristida basiramea*), plains oval sedge (*Carex brevior*), midland sand sedge (*Cyperus* X *mesochorus*), sessile-leaved tick trefoil (*Desmodium sessilifolium*), hairy hawkweed (*Hieracium gronovii*), dwarf dandelion (*Krigia virginica*), narrow-leaved pinweed (*Lechea tenuifolia*), round-headed bush clover (*Lespedeza capitata*), blue toadflax (*Linaria canadensis*), sand primrose (*Oenothera rhombipetala*), prairie switch grass (*Panicum virgatum*), little bluestem (*Schizachyrium scoparium*), sand dropseed (*Sporobolus cryptandrus*), and purple grass (*Triplasis purpurea*) (**App. 2, Table 12**). Most of the dominant species at this site were represented by matrix species, including Pennsylvania oak sedge, viscid grass-leaved goldenrod, fall witch grass, eastern prickly pear cactus, and white-haired panic grass (**App. 2, Table 12**).

A relatively large percentage of the native flora at this site (50.7% [34 species]) was comprised of native ruderal species, and many of these (especially Yankee blackberry and Canada goldenrod) were common to abundant (**App. 2, Table 12**).

The native FQI was 28.6 (26.2 with adventive species) and the native mean C-value was 3.5 (2.9 with adventive species) (**App. 2, Table 12**), supporting the interpretation of grade C- to D+ remnant prairie.

- Grade C to C- Mesic Sand Prairie (**Prairie Site 17**)

Prairie Site 17 was 4.7 acres and occurred along Interstate-55 approximately 2.5 miles west of Wilmington, IL, inside the large median between the northbound and southbound lanes of Interstate-55, just south of Prairie Site 14 (**App. 1, Figs. 2B and 22**). This remnant habitat was highly degraded with heavy encroachment by woody species, but still had many prairie indicator species. Additionally, the **Eryngium Stem Borer Moth (*Papaipema eryngii*)** was found within this remnant habitat during 2012 entomology surveys.

A total of 112 species were observed at this site, with 97 (86.6%) native species and 15 (13.4%) adventive species (*) (**App. 2, Table 13**). Of the 97 native species observed, a relatively high percentage (14.4% [14 species]) were conservatives, and included: round-shouldered oval sedge (*Carex longii*; C = 8), downy green sedge (*Carex swanii*; C = 8), rattlesnake master (*Eryngium yuccifolium*; C = 7), downy sunflower (*Helianthus mollis*; C = 7), marsh blazing star (*Liatris spicata*; C = 7), interrupted fern

(*Osmunda claytoniana*; C = 9), regal fern (*O. regalis* var. *spectabilis*; C = 8), cowbane (*Oxypolis rigidor*; C = 7), wild quinine (*Parthenium integrifolium*; C = 8), purple milkwort (*Polygala polygama* var. *obtusata*; C = 7), tall nut grass (*Scleria triglomerata*; C = 9), showy goldenrod (*Solidago speciosa*; C = 7), marsh shield fern (*Thelypteris palustris* var. *pubescens*; C = 7), and lance-leaved violet (*Viola lanceolata*; C = 7). Of these species, four were relatively common to abundant, and included rattlesnake master, downy sunflower, wild quinine, and tall nut grass, with the remaining species being rare to occasional (**App. 2, Table 13**).

Dominant and sub-dominant herbaceous species in these habitats included broom sedge (*Andropogon virginicus*), grass-leaved goldenrod (*Euthamia graminifolia*), Kentucky blue grass* (*Poa pratensis*), common mountain mint (*Pycnanthemum virginianum*), and Canada goldenrod (*Solidago canadensis*), with locally dominant species including downy sunflower, prairie switch grass (*Panicum virgatum*), and tall nut sedge (**App. 2, Table 13**). Overall, the most dominant species within these areas were shrubs and/or small trees that were invading this prairie habitat (***see* App. 1, Figure 22A**), with most of the encroachment consisting of adventive species. Species most heavily encroaching included: autumn olive* (*Elaeagnus umbellata*), amur honeysuckle* (*Lonicera maackii*), and Japanese crab* (*Malus sieboldii*). Native species that were also encroaching into these prairie habitats included: silver maple (*Acer saccharinum*), gray dogwood (*Cornus racemosa*), green ash (*Fraxinus pennsylvanica* var. *subintegerrima*), eastern red cedar (*Juniperus virginiana*), and Yankee blackberry (*Rubus pensylvanicus*).

Matrix species, including several prairie indicators, represented 45.4% (44 species) of the flora at this site. Conservative species also represented a relatively high percentage (14.4% [14 species]) of the flora. Matrix species that were indicators of remnant prairie habitat and ranged from occasional to somewhat common, included: pussy toes (*Antennaria plantaginifolia*), tall green milkweed (*Asclepias hirtella*), heath aster (*Aster ericoides*), New England aster (*A. novae-angliae*), woolly sedge (*Carex lanuginosa*), lance-fruited oval sedge (*C. scoparia*), false toad-flax (*Comandra umbellata*), tall coreopsis (*Coreopsis tripteris*), false dandelion (*Krigia biflora*), round-headed bush clover (*Lespedeza capitata*), lance-leaved loosestrife (*Lysimachia lanceolata*), slender mountain mint (*Pycnanthemum tenuifolium*), little bluestem (*Schizachyrium scoparium*), common blue-eyed grass (*Sisyrinchium albidum*), Indian grass (*Sorghastrum nutans*), prairie cord grass (*Spartina pectinata*), meadow sweet (*Spiraea alba*), Culver's root (*Veronicastrum virginicum*), and golden Alexanders (*Zizia aurea*) (**App. 2, Table 13**).

Native ruderal species represented 40.2% (39 species) of the native flora at this site, and many of these were common to abundant (**App. 2, Table 13**). Three of these species, including broom sedge, grass-leaved goldenrod and Canada goldenrod, were dominants or subdominants. This high percentage of native ruderal species, their dominance and/or relative abundance, as well as the high number and abundance of species representing adventives (13.4%), also underscores the degraded condition of this remnant prairie habitat.

The native FQI for this site was 39.6 (36.9 with adventive species) and the native mean C was 4.0 (3.5 with adventive species) (**App. 2, Table 13**). These values are relatively high and might lead to the interpretation of a higher quality remnant habitat (grade C+ to B-) when other habitat characteristics are not considered. Characteristics supporting the interpretation of a moderately to highly degraded habitat include (***see also* App. 2, Table 13**): **1)** low abundance values for most of the conservative species present, **2)** the high percentage of native ruderals and their high abundance and/or dominance, **3)** the high abundance and/or dominance of adventive species, and **4)** the heavy encroachment and dominance of woody species, with the majority of this encroachment represented by adventive species. Overall, this remnant prairie habitat was significantly degraded, but still possessed a high level of diversity of native prairie vegetation, although much of this diversity was sparse.

Forest

Forest communities (non-wetland and wetland [*]) in the IDOT Illiana Study Area included: dry-mesic sand forest, dry-mesic upland forest, mesic upland forest, mesic/wet-mesic floodplain forest, forested wetland*, wet floodplain forest*, forested wetland/wetland pond*, and forested wetland/wet shrubland*. Non-wetland forest habitats comprised 533.3 acres (3.4%) of the study area, and forested habitats that represented wetlands comprised 93.5 acres (0.6%) of the 2012 Study Area (**App. 2, Table 1**). Combined, all forest community types comprised 626.8 acres (4%) of the study area (**App. 2, Table 1**). Nearly all forest communities (non-wetland and wetland) within the IDOT Illiana Study Area were located near Wilmington, IL (**App. 1, Fig. 2B**).

Below are descriptions of non-wetland forest communities that occurred within the IDOT Illiana Study Area. Dry-mesic upland and mesic upland forest habitats that occurred along the south bluffs of the Kankakee River, and are discussed in detail in the section pertaining to Regionally Noteworthy Botanical Resource Site 1, are not included in the following section. Forested habitats representing wetlands are discussed in detail in the INHS wetlands report.

Dry-mesic Sand Forest

The majority of non-wetland forest habitat in the IDOT Illiana Study Area was represented by dry-mesic sand forest (including all 2012 Illiana forest sampling sites [sites 1 – 4]), and all of these forests occurred near Wilmington, IL (**App. 1, Figs. 2B and 23**). Dry-mesic sand forest habitats ranged from moderately to highly degraded, and all showed evidence of past grazing, logging and/or fire suppression. Characteristic conditions within these forest stands included one or more of the following: **1)** abundant bare ground/leaf litter with low ground flora diversity, **2)** moderate to dense undergrowth of fire-sensitive woody species, especially black cherry (*Prunus serotina*), **3)** the presence of larger, shade-pruned oaks in the canopy (an indication of more recent increased tree densities and consequent shading), **4)** the presence and often dominance of plant species that increase in abundance and/or are often introduced into an area under a grazing regime, including: **trees** - hawthorns (*Crataegus* spp.), Japanese crab apple* (*Malus sieboldii*), and black locust* (*Robinia pseudo-acacia*); **shrubs and woody vines** - autumn olive* (*Elaeagnus umbellata*), amur honeysuckle* (*Lonicera maackii*), multiflora rose* (*Rosa multiflora*), blackberries, dewberries, and raspberries (*Rubus* spp. – especially Yankee blackberry [*Rubus pensylvanicus*]), and bristly greenbrier (*Smilax hispida*); and **forbs** - white snakeroot (*Eupatorium rugosum*), annual bedstraw (*Galium aparine*), anise root (*Osmorhiza longistylis*), Virginia knotweed (*Polygonum virginianum*), and black snakeroot (*Sanicula gregaria*). More open wooded habitats within these larger forested areas that retained a larger degree of their historical structure and diversity (**App. 1, Fig. 23B**) were small and scattered. Decades of fire-suppression, in large part, have led to dense woody undergrowth and closed-canopy conditions within these sand forest habitats (**App. 1, Fig. 23A**), as well as a corresponding loss in species diversity.

Canopy – The most dominant canopy species in these habitats was black oak (*Quercus velutina*), with white oak (*Q. alba*) as a subdominant in many areas. Occasional to infrequent canopy species included: common catalpa* (*Catalpa speciosa*), hackberry (*Celtis occidentalis*), honey locust (*Gleditsia triacanthos*), black walnut (*Juglans nigra*), black cherry, and red oak (*Quercus rubra*).

Subcanopy – The most dominant subcanopy species were black cherry and black oak, followed by white oak. Species that were sometimes locally abundant included Japanese crab apple and sassafras (*Sassafras albidum*). Occasional to infrequent subcanopy species included bitternut hickory (*Carya cordiformis*), common catalpa*, hackberry, white mulberry* (*Morus alba*), and American elm (*Ulmus americana*).

Shrubs and Woody Vines – Some of the most frequently encountered shrubs and woody vines within these habitats included: amur honeysuckle*, Virginia creeper (*Parthenocissus quinquefolia*), common choke cherry (*Prunus virginiana*), multiflora rose*, common dewberry (*Rubus flagellaris*), Yankee blackberry, bristly greenbrier, and poison ivy (*Toxicodendron radicans*) (***see also* App. 3**). Other species that were occasional to common, included: autumn olive*, Missouri gooseberry (*Ribes missouriense*), pasture rose (*Rosa carolina*), common blackberry (*Rubus allegheniensis*), and prickly ash (*Zanthoxylum americanum*). Species that were relatively infrequent to occasional included hazelnut (*Corylus americana*), black huckleberry (*Gaylussacia baccata*), staghorn sumac (*Rhus typhina*), early low blueberry (*Vaccinium angustifolium*), and downy arrow-wood (*Viburnum rafinesquianum*) (***see also* App. 3**).

Herbaceous Ground Flora – Characteristic ground flora species within these habitats included: **ferns** – rattlesnake fern (*Botrychium virginianum*) and bracken fern (*Pteridium aquilinum*); **rushes** – path rush (*Juncus tenuis*) and common wood rush (*Luzula multiflora*); **sedges** – running yellow fox sedge (*Carex annectens*), blunt-scaled oak sedge (*C. artitecta*), common wood sedge (*C. blanda*), savanna sedge (*C. foenea*), Pennsylvania sedge (*C. pensylvanica*), downy green sedge (*C. swanii*), and early oak sedge (*C. umbellata*); **grasses** – woodland brome (*Bromus pubescens*), poverty oat grass (*Danthonia spicata*), silky wild rye (*Elymus villosus*), nodding fescue (*Festuca obtusa*), and deer tongue grass (*Panicum clandestinum*); and **forbs** – tall agrimony (*Agrimonia gryposepala*), garlic mustard* (*Alliaria petiolata*), Indian turnip (*Arisaema triphyllum*), American bellflower (*Campanula americana*), enchanter's nightshade (*Circaea lutetiana* var. *canadensis*), spring beauty (*Claytonia virginica*), white snakeroot, annual bedstraw, wild licorice (*Galium circaezans*), wild geranium (*Geranium maculatum*), stickseed (*Hackelia virginiana*), woodland sunflower (*Helianthus divaricatus*), blue lettuce (*Lactuca floridana*), blunt-leaf sandwort (*Moehringia lateriflora*), anise root, may apple (*Podophyllum peltatum*), great Solomon seal (*Polygonatum commutatum*), Virginia knotweed, common cinquefoil (*Potentilla simplex*), black snakeroot, late figwort (*Scrophularia marilandica*), feathery false Solomon seal (*Smilacina racemosa*), elm-leaved goldenrod (*Solidago umlifolia*), and arrow-leaved violet (*Viola sagittata*) (***see also* App. 3**).

Dry-mesic and Mesic Upland Forest

With the exception of dry-mesic and mesic upland forest habitats occurring within Regionally Noteworthy Botanical Resource Site 1, remaining dry-mesic and mesic upland forest habitats within the study area were highly degraded. Occurring in the upland areas on the north and south sides of the Kankakee River, near Wilmington, IL, these habitats occurred occasionally and regularly intergraded. As with dry-mesic sand forest habitats, these habitats had clearly been affected by past land-use patterns including grazing, logging and fire suppression, with the following conditions characteristic of these areas: **1)** abundant bare ground/leaf litter with a lack of ground flora diversity, **2)** moderate to dense undergrowth of fire-sensitive woody species, **3)** little or no oak recruitment into an overstory frequently dominated by large oaks, **4)** the presence of larger, shade-pruned oaks in the canopy (an indication of more recent increased tree densities and consequent shading), and **5)** the presence and often dominance of plant species that increase in abundance and/or are often introduced into an area under a grazing regime.

Canopy – In areas that retained a higher degree of the historical structure and composition characteristic of oak woodlands, the largest and most dominant canopy species were represented by white oak (*Quercus alba*), bur oak (*Q. macrocarpa*), red oak (*Q. rubra*), and black oak (*Quercus velutina*). In other areas, occasional to common canopy species included sugar maple (*Acer saccharum*), hackberry (*Celtis occidentalis*), honey locust (*Gleditsia triacanthos*), black walnut (*Juglans nigra*), black cherry (*Prunus*

serotina), and American basswood (*Tilia americana*). Infrequent canopy species included: shagbark hickory (*Carya ovata*), white mulberry* (*Morus alba*), cottonwood (*Populus deltoides*), and American elm (*Ulmus americana*) (***see also* App. 3**).

Subcanopy – The most frequently encountered subcanopy species were hackberry, black cherry, red oak, American basswood, and American elm. Species that ranged from occasional to common included boxelder (*Acer negundo*), sugar maple, common catalpa* (*Catalpa speciosa*), green ash (*Fraxinus pennsylvanica* var. *subintegerrima*), black walnut, white mulberry*, and hop hornbeam (*Ostrya virginiana*).

Shrubs and Woody Vines – The most frequently encountered shrubs and woody vines included: amur honeysuckle* (*Lonicera maackii*), Virginia creeper (*Parthenocissus quinquefolia*), and poison ivy (*Toxicodendron radicans*). Other common species included choke cherry (*Prunus virginiana*), Missouri gooseberry (*Ribes missouriensis*), multiflora rose* (*Rosa multiflora*), black raspberry (*Rubus occidentalis*), Yankee blackberry (*R. pensylvanicus*), bristly greenbrier (*Smilax hispida*) and frost grape (*Vitis vulpina*) (***see also* App. 3**).

Herbaceous Ground Flora – Characteristic ground flora species within these habitats included: **sedges** – common wood sedge (*Carex blanda*), short-headed bracted sedge (*C. cephalophora*), wood gray sedge (*C. grisea*), Pennsylvania sedge (*C. pensylvanica*), and loose-headed bracted sedge (*C. sparganioides*); **grasses** – woodland brome (*Bromus pubescens*), silky wild rye (*Elymus villosus*), Virginia wild rye (*E. virginicus*), nodding fescue (*Festuca obtusa*), and white grass (*Leersia virginica*); and **forbs** – wild onion (*Allium canadense*), garlic mustard* (*Alliaria petiolata*), American bellflower (*Campanula americana*), enchanter's nightshade (*Circaea lutetiana* var. *canadensis*), honewort (*Cryptotaenia canadensis*), stickseed (*Hackelia virginiana*), blue lettuce (*Lactuca floridana*), anise root (*Osmorhiza longistylis*), lopseed (*Phryma leptostachya*), pokeweed (*Phytolacca americana*), may apple (*Podophyllum peltatum*), great Solomon seal (*Polygonatum commutatum*), Virginia knotweed (*Polygonum virginianum*), black snakeroot (*Sanicula gregaria*), and blue violet (*Viola sororia*) (***see also* App. 3**).

Mesic/Wet-Mesic Floodplain Forest

Mesic/Wet-mesic floodplain forest habitats (**App. 1, Fig. 24**) within the IDOT Illiana Study Area occurred in two locations – along Forked Creek, approximately 8 miles west of Peotone, IL (**App. 1, Fig. 2C**), and along the Kankakee River in and near Wilmington, IL (**App. 1, Fig. 2B**). The vast majority of this habitat type occurred along the Kankakee River, with only a small amount occurring along Forked Creek. All areas representing this community type were highly degraded, with the most diverse areas associated with these communities occurring along the Kankakee River shoreline and open water habitats on the edges of these forested areas. Seasonal floods are a regular part of the disturbance regime in these habitats, and species compositions are similar to those of forested wetland habitats with which they regularly intergraded.

Canopy – The two most dominant canopy species within these habitats were silver maple (*Acer saccharinum*) and green ash (*Fraxinus pennsylvanica* var. *subintegerrima*), with other commonly encountered species including black walnut (*Juglans nigra*) and cottonwood (*Populus deltoides*). Occasional canopy species characteristic of these habitats included boxelder (*Acer negundo*), hackberry (*Celtis occidentalis*), honey locust (*Gleditsia triacanthos*), sycamore (*Platanus occidentalis*), black cherry (*Prunus serotina*), bur oak (*Quercus macrocarpa*), black willow (*Salix nigra*), and American elm (*Ulmus americana*) (***see also* App. 3**).

Subcanopy – As with canopy compositions in these habitats, the subcanopy was also dominated by silver maple and green ash. Other frequent and characteristic subcanopy species in these habitats included boxelder, hackberry, and American elm. Species ranging from occasional to common included downy hawthorn (*Crataegus mollis*), black walnut, white mulberry* (*Morus alba*), sycamore, black cherry, bur oak, and black willow (***see also* App. 3**).

Shrubs and Woody Vines – The most frequently encountered shrub and woody vine species within these habitats were amur honeysuckle* (*Lonicera maackii*), common elderberry (*Sambucus canadensis*), bristly greenbrier (*Smilax hispida*), poison ivy (*Toxicodendron radicans*), riverbank grape (*Vitis riparia*) and frost grape (*V. vulpina*). Other common to occasional species included indigo bush (*Amorpha fruticosa*), showy fly honeysuckle* (*Lonicera* X *bella*), Virginia creeper (*Parthenocissus quinquefolia*), and wafer ash (*Ptelea trifoliata*).

Herbaceous Ground Flora – Occasional to frequent herbaceous ground flora species characteristic of mesic/wet-mesic floodplain forests included: **sedges** – green-headed fox sedge (*Carex conjuncta*), common bur sedge (*C. grayi*), long-scaled tussock sedge (*C. haydenii*), common fox sedge (*C. stipata*), and tussock sedge (*C. stricta*); **grasses** – common wood reed (*Cinna arundinacea*), Virginia wild rye (*Elymus virginicus*), nodding fescue (*Festuca obtusa*), fowl manna grass (*Glyceria striata*), white grass (*Leersia virginica*), deer tongue grass (*Panicum clandestinum*), and reed canary grass* (*Phalaris arundinacea*); and **forbs** – garlic mustard* (*Alliaria petiolata*), wild onion (*Allium canadense*), giant ragweed (*Ambrosia trifida*), hog peanut (*Amphicarpaea bracteata*), toothed cress (*Arabis shortii*), side-flowering aster (*Aster lateriflorus*), panicled aster (*A. simplex*), false nettle (*Boehmeria cylindrica*), American bindweed (*Calystegia sepium*), American bellflower (*Campanula americana*), streambank chervil (*Chaerophyllum procumbens*), honewort (*Cryptotaenia canadensis*), common dodder (*Cuscuta gronovii*), marsh fleabane (*Erigeron philadelphicus*), white snakeroot (*Eupatorium rugosum*), common hops (*Humulus lupulus*), Virginia waterleaf (*Hydrophyllum virginianum*), spotted touch-me-not (*Impatiens capensis*), violet cress (*Iodanthus pinnatifidus*), Canada wood nettle (*Laportea canadensis*), cardinal flower (*Lobelia cardinalis*), great blue lobelia (*L. siphilitica*), fringed loosestrife (*Lysimachia ciliata*), moneywort* (*L. nummularia*), blue phlox (*Phlox divaricata*), Canada clearweed (*Pilea pumila*), smartweed (*Polygonum punctatum*), swamp buttercup (*Ranunculus septentrionalis*), wild golden glow (*Rudbeckia laciniata*), black snakeroot (*Sanicula gregaria*), butterweed (*Senecio glabellus*), bur cucumber (*Sicyos angulatus*), common carrion flower (*Smilax lasioneuron*), late goldenrod (*Solidago gigantea*), woundwort (*Stachys palustris*), wingstem (*Verbisina alternifolia*), Missouri violet (*Viola missouriensis*), common blue violet (*V. pratincola*), and golden Alexanders (*Zizia aurea*) (***see also* App. 3**).

Species characteristic of shoreline and open water habitats associated with floodplain forests included: waterhemp (*Amaranthus rudis*), long-leaved ammannia (*Ammannia coccinea*), nodding bur marigold (*Bidens cernuua*), awned flat nutsedge (*Cyperus aristatus*), red-rooted nutsedge (*C. erythrorhizos*), needle spike rush (*Eleocharis acicularis*), common waterweed (*Elodea canadensis*), creeping love grass (*Eragrostis hypnoides*), halberd-leaved rose mallow (*Hibiscus laevis*), water willow (*Justicia americana*), rice cut grass (*Leersia oryzoides*), small duckweed (*Lemna minor*), obe-wan-conobea (*Leucospora multifida*), marsh purslane (*Ludwigia palustris* var. *americana*), monkey flower (*Mimulus ringens*), spiked water milfoil (*Myriophyllum exalbescens*), water cress* (*Nasturtium officinale*), comb pondweed (*Potamogeton pectinatus*), baby pondweed (*P. pusillus*), marsh yellow cress (*Rorippa palustris*), chairmaker's rush (*Scirpus americanus*), small flowered rush (*Scirpus micranthus*), great duckweed (*Spirodela polyrhiza*), and eel grass (*Vallisneria americana*) (***see also* App. 3**).

Eastern Prairie Fringed Orchid (EPFO) Survey Results

Following the USFWS survey protocols outlined in the methodology section of this report, searches for eastern prairie fringed orchid (*Platanthera leucophaea*) were conducted in all areas of the IDOT 2012 Illiana Study Area that represented suitable habitat (no suitable habitat [Prairie Site 19] occurred within the 2013 addendum survey area). Areas representing suitable habitat that were searched during the 2012 growing season included all remnant prairie habitats (or, in some cases, the portions of these remnant habitats that had the appropriate moisture class) along the Canadian National railroad, in Peotone, IL (Prairie Sites 1 – 12) (**App. 1, Fig. 2E**). The remaining prairie habitats (with the exception of Prairie Sites 17 & 18) were either too degraded or were the wrong moisture class to be considered suitable habitat. Prairie Site 17 (**App. 1, Fig. 2B**) was searched for EPFO following USFWS guidelines during the 2009 growing season (Murphy 2009) and Prairie Site 18 (**App. 1, Fig. 2B**) was searched during the 2010 growing season (Hill 2010). Multiple visits were made to Prairie Sites 17 and 18 during the 2012 growing season; however, these visits were not made between 28 June and 11 July. No individuals of EPFO were seen in any habitats within the IDOT 2012 Illiana Study Area.

Forest Sampling Results (non-wetland forest habitats)

General Description

Four upland forest sites (**App. 1, Fig. 2B; App. 2, Table 14**) within the IDOT Illiana Study Area met the size criterion of $\geq$ 20 acres and were sampled during the 2012 growing season. A total of 32 forest plots (plot size; 5,382 ft.² [500 m²]) were sampled at these sites (8 plots per forest), giving a total forest sampling area of 4 acres (1.6 ha). All forest sampling sites represented dry-mesic sand forest habitat, but all had small to large wet forested depressions scattered throughout. Tree species compositions in these forested wetland habitats were very different from those of adjacent drier areas, and upland forest sampling efforts avoided these wetland habitats. All forest sampling sites were moderately to highly degraded, and all showed evidence of land-use patterns that included grazing, logging and/or fire suppression.

Decades of fire suppression have led to stand closure in these areas, with an apparent corresponding loss in species diversity. Discussions of individual forest stands are provided in the following section, and results of forest sampling are summarized in **App. 2, Tables 14 – 19.**

Combined Results for all Forest Sampling Sites

Of the 42 total tree species observed within the IDOT Illiana Study Area, 19 (45%) occurred in the upland forest sampling plots, and two of these were species adventive to the region (**App. 2, Tables 14 and 15**). Eight of these 19 species occurred in only one of the 32 sampling plots and are shown in **App. 2, Table 15** (those with % Freq. of 3.13).

Black oak (*Quercus velutina*) was the most important species occurring within upland forest sites, comprising 47.3% of the total importance value ([IV] – based on IV 300), followed by white oak (*Q. alba*) (19.5%) and black cherry (*Prunus serotina*) (17.1%) (**App. 2, Table 15**). Importance values for the remaining 16 species were 3% or less (**App. 2, Table 15**). Across stands, the average density of black oak was 103 trees per acre (average basal area of 97.7 ft.² per acre), with white oak having 31 trees per acre (average basal area of 30.7 ft.² per acre) and black cherry having 42 trees per acre (average basal area of 12.1 ft.² per acre) (***see also*** **App. 2, Table 15**).

Forest Site 1

Forest site 1 was located just west of Wilmington, IL, approximately 1.3 miles north of Strip Mine Road and approximately 500 ft. east of Interstate-55 (**App. 1, Fig. 2B**). This forest habitat was bordered by the Kankakee River on its north side and mostly developed land (residential areas) and agricultural land on its east, west, and southern boundaries. This 21 acre habitat was highly degraded and represented a dry-mesic sand forest which had scattered wet depressions throughout. Tree stand age was estimated to be young second growth (20 – 40 years old) to submature (40 – 60 years old). Evidence likely indicative of past cattle grazing at this site included the dominance of the shrub and woody vine species amur honeysuckle* (*Lonicera maackii*), Virginia creeper (*Parthenocissus quinquefolia*), common blackberry (*Rubus allegheniensis*), and Yankee blackberry (*R. pensylvanicus*); and dominant herbaceous species including white snakeroot (*Eupatorium rugosum*), anise root (*Osmorhiza longistylis*), Virginia knotweed (*Polygonum virginianum*), and black snakeroot (*Sanicula gregaria*).

Thirteen tree species, including one adventive species (white mulberry [*Morus alba*]) occurred in sampling plots at Forest Site 1, with an average of five tree species per sampling plot (**App. 2, Tables 14 and 16**). Dominant tree species at this site (with corresponding % importance value [IV 300]) were black oak (*Quercus velutina* – 33.8%), black cherry (*Prunus serotina* – 22.3%), and white oak (*Quercus alba* – 19.8%) (**App. 2, Table 16**). Species that were infrequent and only occurred in one sampling plot included honey locust (*Gleditsia triancanthos*), hackberry (*Celtis occidentalis*), sugar maple (*Acer saccharum*), silver maple (*A. saccharinum*), shagbark hickory (*Carya ovata*), and white mulberry* (**App. 2, Table 16**). Tree density within this forest stand was 145.6 stems per acre. Black cherry had the highest density with 35.4% of the stem total, followed by black oak (29.2%) and white oak (16%) (**App. 2, Table 16**). The total basal area for this forest stand was 161.8 ft.² per acre, with black oak representing 50% of this, followed by white oak (26.8%) and black cherry (12.1%) (**App. 2, Table 16**).

Forest Site 2

Forest Site 2 was located just west of Wilmington, IL, southeast of Forest Site 1, occurring approximately 0.5 mile north of Strip Mine Road and approximately 1 mile east of Interstate-55 (**App. 1, Fig. 2B**). This forest habitat was surrounded mostly by developed land and pasture land, with a gas pipeline clear-cut separating it from adjacent forest habitat on its northern boundary (**App. 1, Fig. 2B**). This 30 acre habitat ranged from low to medium quality, with the predominant condition low quality. Forest Site 2 represented dry-mesic sand forest, with the presence of several scattered wet depressions occurring throughout. Tree stand age was estimated to range from submature (20 – 40 years) to mature second growth (40 – 90 years). Dominant species within the shrub layer, which were likely indicative of disturbances resulting from past grazing, included amur honeysuckle* (*Lonicera maackii*), Virginia creeper (*Parthenocissus quinquefolia*), Missouri gooseberry (*Ribes missouriensis*), multiflora rose* (*Rosa multiflora*), and Yankee blackberry (*Rubus pensylvanicus*). Bare ground/leaf litter was the dominant condition in much of this forested habitat, but when present, herbaceous species that were frequent to dominant and also likely indicative of past grazing included enchanter's nightshade (*Circaea lutetiana* var. *canadensis*), stickseed (*Hackelia virginiana*), white snakeroot (*Eupatorium rugosum*), anise root (*Osmorhiza longistylis*), and Virginia knotweed (*Polygonum virginianum*).

Seven tree species, including one adventive species (common catalpa [*Catalpa speciosa*]) occurred in sampling plots at Forest Site 2, with an average of four species occurring per plot (**App. 2, Tables 14 and 17**). Dominant tree species (with corresponding % importance value [IV 300]) were black oak (*Quercus velutina* – 56.4%), white oak (*Q. alba* – 18.6%), and black cherry (*Prunus serotina* – 12.2%) (**App. 2, Table 17**). Infrequent species – those occurring in half or fewer of the sampling plots, were American

elm (*Ulmus americana*), common catalpa*, eastern red cedar (*Juniperus virginiana*), and green ash (*Fraxinus pennsylvanica* var. *subintegerrima*) (**App. 2, Table 17**). Tree density within this forest stand was 210.3 trees per acre, dominated by black oak with 61.1% of the stem total, followed by white oak (19.8%) and black cherry (12%) (**App. 2, Table 17**). The total basal area within this stand was 149 ft.² per acre, with black oak representing nearly 80% of this, followed by white oak (14.8%) (**App. 2, Table 17**). Relative to the high stem density within this forest, the lower basal area value is due to the relatively small average DBH of trees within this stand (especially black oak) (**App. 2, Table 17**).

Forest Site 3

Forest Site 3 was located just west of Wilmington, IL, immediately north of Forest Site 2, occurring approximately 0.7 mile north of Strip Mine Road and approximately 1 mile east of Interstate-55 (**App. 1, Fig. 2B**). This forest habitat was surrounded by agricultural land and pasture land on its north and west boundaries, forested wetland on its eastern boundary, and Forest Site 2 on its southern boundary (**App. 1, Fig. 2B**). This 30 acre habitat ranged from low to medium quality, with the predominant condition trending toward low quality. This habitat represented dry-mesic sand forest, and as with Forest Sites 1 and 2, was characterized by scattered wet depressions occurring throughout. Tree stand age was estimated to range between submature (20 – 40 years) and mature second growth (40 – 90 years). Dominant species within the shrub layer, which were likely indicative of past grazing, similar to Forest Site 2, included amur honeysuckle* (*Lonicera maackii*), Virginia creeper (*Parthenocissus quinquefolia*), Missouri gooseberry (*Ribes missouriensis*), multiflora rose* (*Rosa multiflora*), and Yankee blackberry (*Rubus pensylvanicus*). Bare ground/leaf litter was a dominant condition in much of this forested habitat, but when present, herbaceous species that were frequent to dominant and also likely indicative of grazing, included enchanter's nightshade (*Circaea lutetiana* var. *canadensis*), stickseed (*Hackelia virginiana*), white snakeroot (*Eupatorium rugosum*), anise root (*Osmorhiza longistylis*), Virginia knotweed (*Polygonum virginianum*), and black snakeroot (*Sanicula gregaria*).

Six tree species occurred in sampling plots at Forest Site 3 (common catalpa [*Catalpa speciosa*] representing a species adventive to the region), with an average of three species occurring per plot (**App. 2, Tables 14 and 18**). Dominant tree species at this site (with corresponding % importance value [IV 300]) were black oak (*Quercus velutina* – 57%), white oak (*Q. alba* – 23.5%), and black cherry (*Prunus serotina* – 14.3%) (**App. 2, Table 18**). Infrequent species (occurring in only one sampling plot) were bitternut hickory (*Carya cordiformis*), common catalpa*, and American elm (*Ulmus americana*) (**App. 2, Table 18**). Tree density within this forest stand was 162.8 trees per acre, and was dominated by black oak with 59% of the stem total, followed by white oak (23.6%) and black cherry (14.9%) (**App. 2, Table 18**). The total basal area within this stand was 151.5 ft.² per acre, and was dominated by black oak (with 78.6% of the total), followed by white oak (17.8%), and black cherry (3%) (**App. 2, Table 18**).

Forest Site 4

Forest Site 4 was located just west of Wilmington, IL, south of Forest Sites 2 & 3, occurring approximately 400 ft. north of Strip Mine Road and approximately 1.2 miles east of Interstate-55 (**App. 1, Fig. 2B**). On the northern, western and southern boundaries, this forest habitat was surrounded by a combination of developed land, agricultural land and pasture land, with forested wetland occurring on its eastern boundary (**App. 1, Fig. 2B**).

This 21 acre habitat was predominantly very low quality, and occurring in a few scattered areas were localized colonies of the adventive tree, black locust* (*Robinia pseudo-acacia*) and/or the adventive shrub, glossy buckthorn* (*Rhamnus frangula*). These areas possessed no native community structure and

few native species, and were not included in sampling efforts. The majority of Forest Site 4 was dry-mesic sand forest, and tree stand age was estimated to range between submature (20 – 40 years) and mature second growth (40 – 90 years). Species that were shrub layer dominants and also likely indicators of past grazing included amur honeysuckle* (*Lonicera maackii*), multiflora rose* (*Rosa multiflora*), and Yankee blackberry (*Rubus pensylvanicus*). Patches of these shrub species were often quite dense. Bare ground/leaf litter was a dominant condition in much of this forested habitat, but when present, frequent to dominant species in the herb layer (not necessarily herbaceous) included garlic mustard* (*Alliaria petiolata*), enchanter's nightshade (*Circaea lutetiana* var. *canadensis*), white snakeroot (*Eupatorium rugosum*), and Virginia creeper (*Parthenocissus quinquefolia*).

Eight tree species including white mulberry* (*Morus alba*) occurred in sampling plots at Forest Site 4, with an average of four species occurring per plot (**App. 2, Tables 14 and 19**). The most dominant tree species at this site (with corresponding % importance value [IV 300]) was black oak (*Quercus velutina* – 42.1%), followed by black cherry (*Prunus serotina* – 19.8%), white oak (*Q. alba* – 16%), and sassafras (*Sassafras albidum* – 12%) (**App. 2, Table 19**). Infrequent species were hackberry (*Celtis occidentalis*), white mulberry*, black walnut (*Juglans nigra*), and downy hawthorn (*Crataegus mollis*) (**App. 2, Table 19**). Tree density within this forest stand was very high, with 292.2 trees per acre. Black oak was dominant, with 50.2% of the stem total, followed by black cherry (23.2%), sassafras (14.6%), and white oak (7.6%) (**App. 2, Table 19**). The total basal area within this stand was 144.1 ft.² per acre. Black oak was dominant, with 50% of the total, followed by white oak (21%), black cherry (13.6%), and sassafras (8.7%) (**App. 2, Table 19**). Of the four forest sampling sites, Forest Site 4 had the highest stem density and the lowest total basal area.

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Appendix 1

Figures

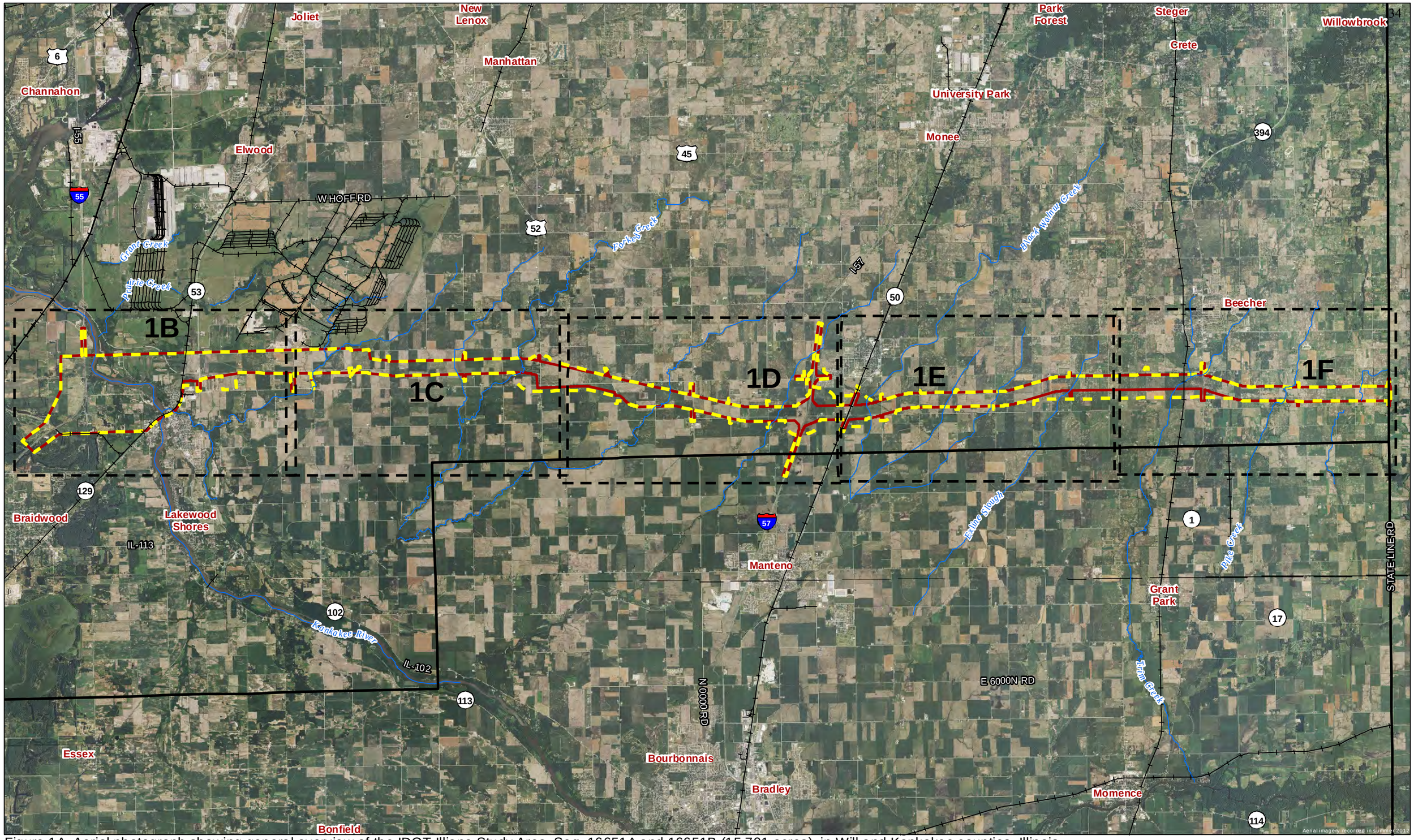

Figure 1A. Aerial photograph showing general overview of the IDOT Illiana Study Area, Seq. 16651A and 16651B (15,701 acres), in Will and Kankakee counties, Illinois.

Addendum B | Addendum A | County Line | Streams | Rail Roads

0 1 2 4 6 8 Miles

N

N-246

Jarvis, 4/10/13

Figure 1B. Aerial photograph showing survey boundaries of the IDOT Illiana Study Area, Seq. 16651A and 16651B (15,701 acres), occurring in Will and Kankakee counties, Illinois.

Addendum B | Addendum A | County Line | Streams | Rail Roads

0 0.5 1 2 Miles

N

N-247

Jarvis, 4/10/13

Aerial imagery recorded in summer 2012

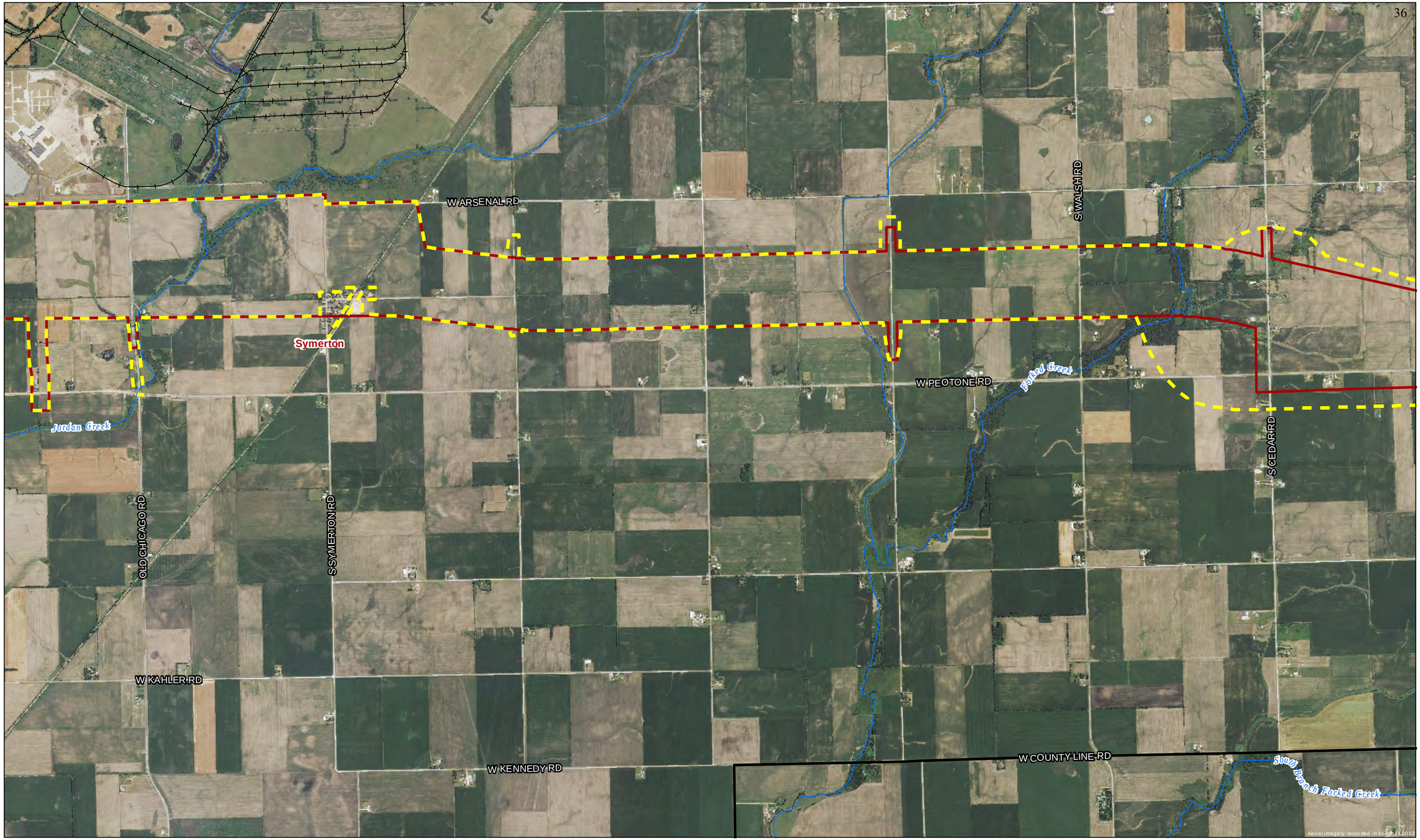

Figure 1C. Aerial photograph showing survey boundaries of the IDOT Illiana Study Area, Seq. 16651A and 16651B (15,701 acres), occurring in Will and Kankakee counties, Illinois.

Addendum B | Addendum A | County Line | Streams | Rail Roads

0 0.5 1 2 Miles

N

N-248

Jarvis, 4/10/13

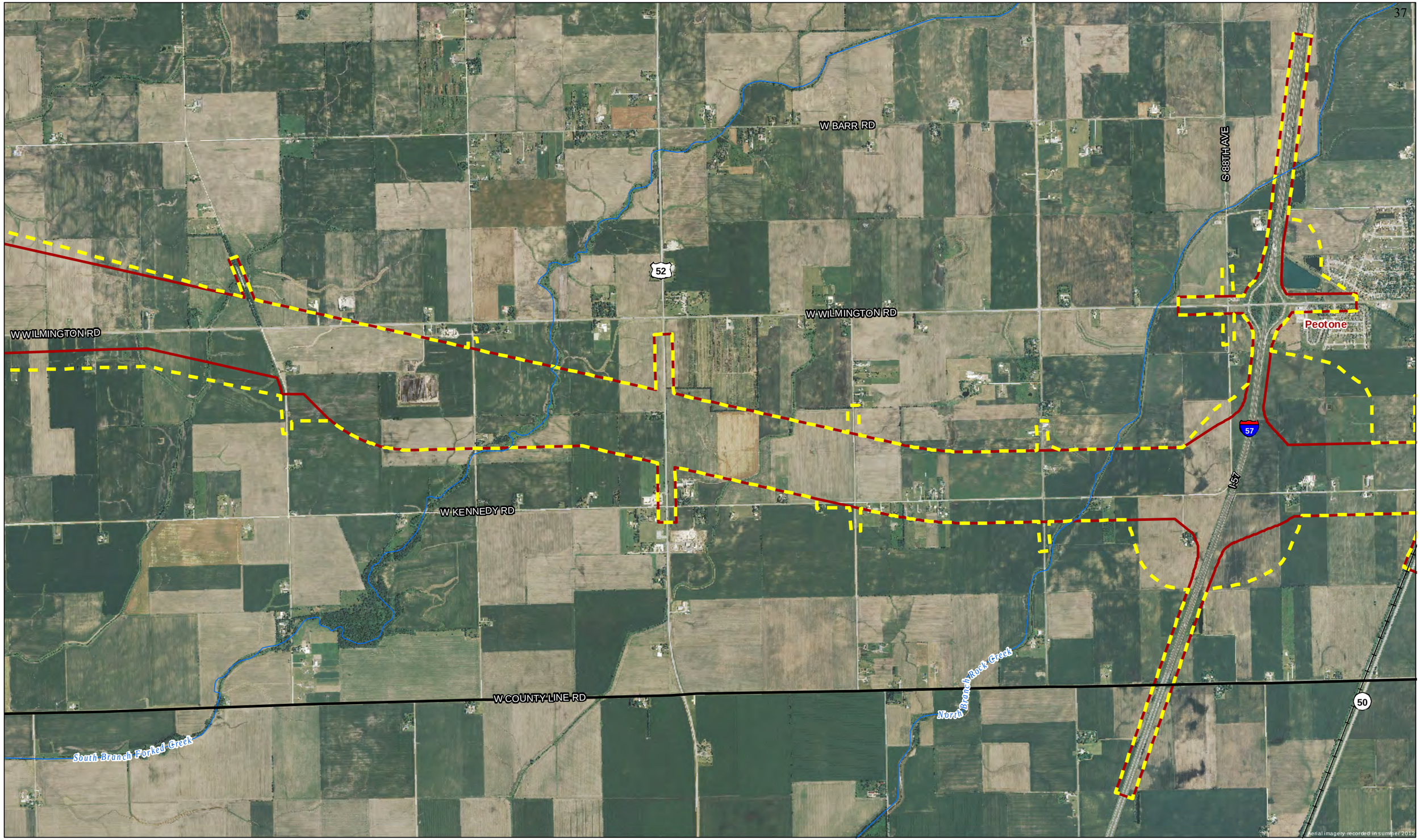

Figure 1D. Aerial photograph showing survey boundaries of the IDOT Illiana Study Area, Seq. 16651A and 16651B (15,701 acres), occurring in Will and Kankakee counties, Illinois.

Addendum B | Addendum A | County Line | Streams | Rail Roads

0 0.5 1 2 Miles

N

N-249

Jarvis, 4/10/13

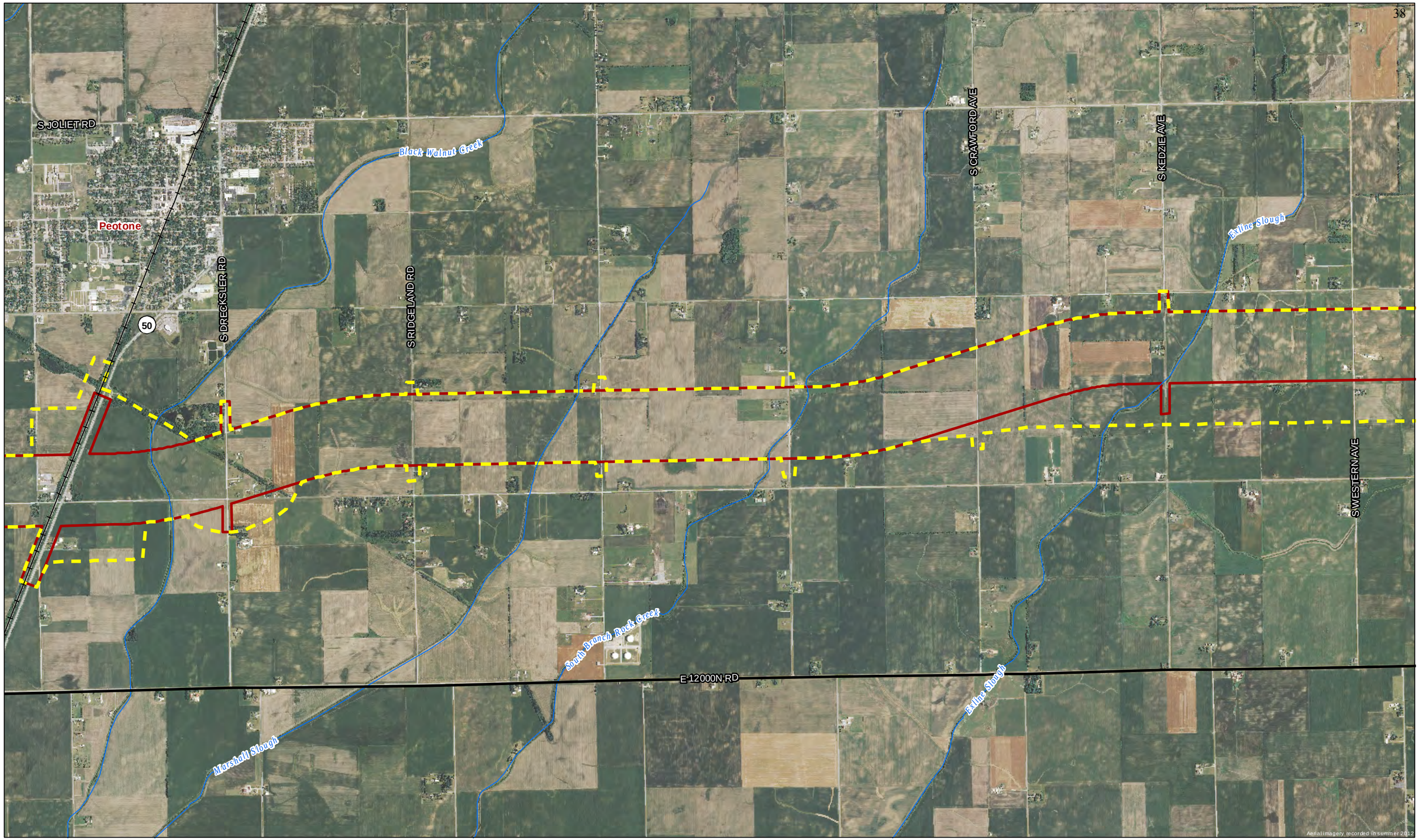

Figure 1E. Aerial photograph showing survey boundaries of the IDOT Illiana Study Area, Seq. 16651A and 16651B (15,701 acres), occurring in Will and Kankakee counties, Illinois.

Addendum B | Addendum A | County Line | Streams | Rail Roads

0 0.5 1 2 Miles

N

N-250

Jarvis, 4/10/13

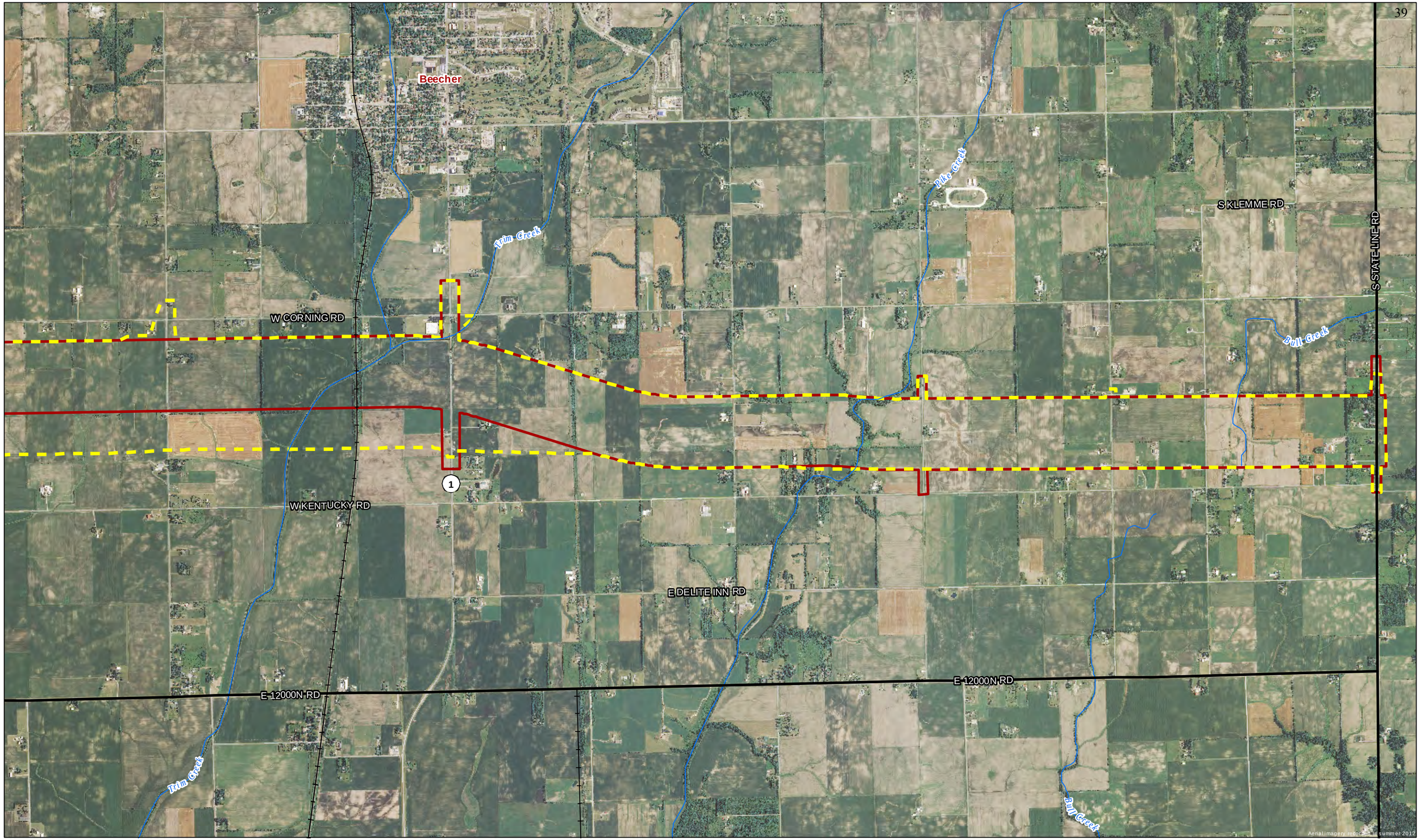

Figure 1F. Aerial photograph showing survey boundaries of the IDOT Illiana Study Area, Seq. 16651A and 16651B (15,701 acres), occurring in Will and Kankakee counties, Illinois.

Addendum B | Addendum A | County Line | Streams | Rail Roads

0 0.5 1 2 Miles

N

N-251

Jarvis, 4/10/13

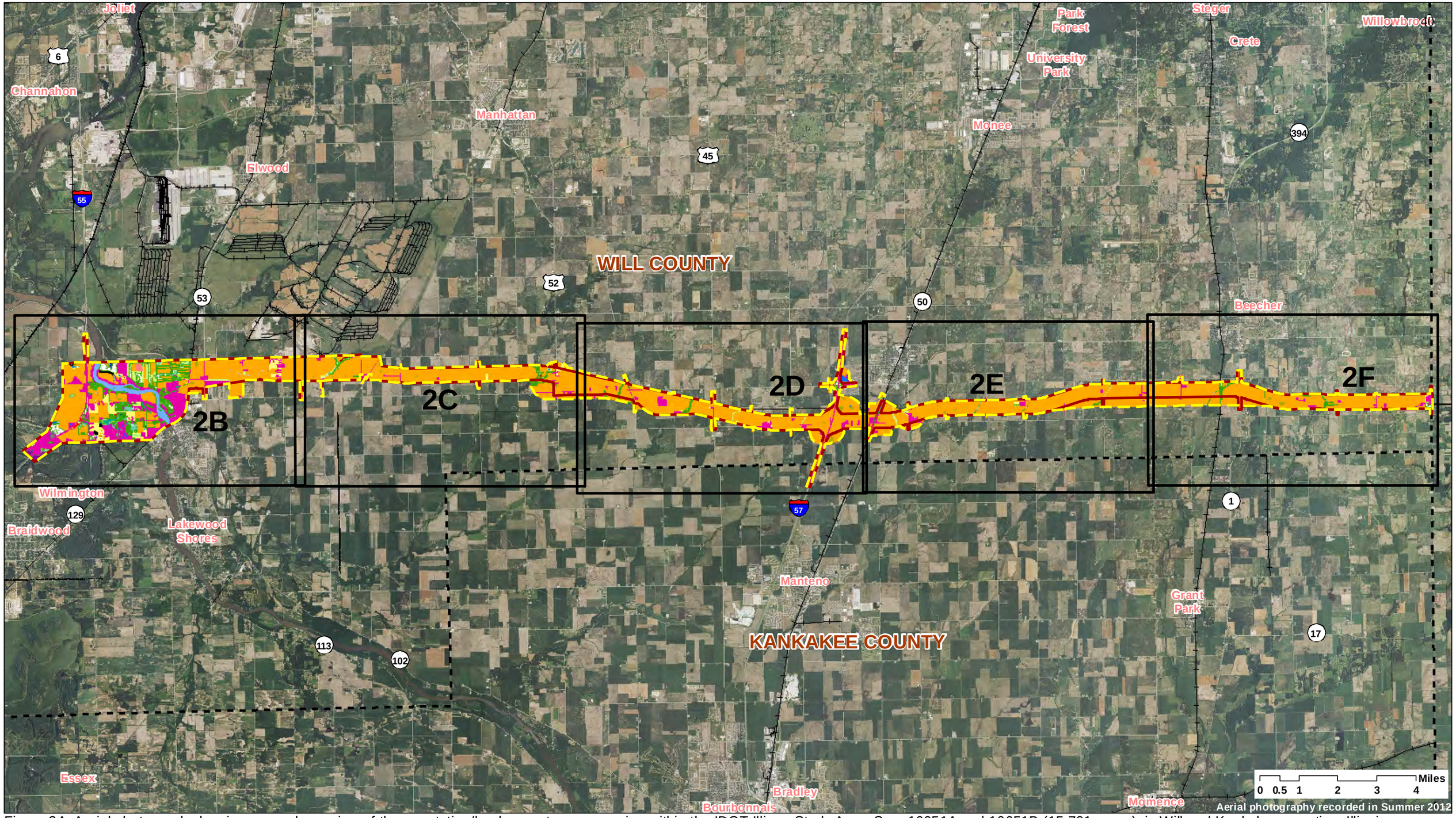

Figure 2A. Aerial photograph showing general overview of the vegetation/land cover-types occurring within the IDOT Illiana Study Area, Seq. 16651A and 16651B (15,701 acres), in Will and Kankakee counties, Illinois.

- Addendum B
- Addendum A
- Rail Roads
- County Line
- Cropland
- Pasture and Hayland
- Urban/Built-up/Developed Land
- Forest
- Tree Planting
- Shrubland
- Forbland
- Non-native Grassland
- Planted Prairie
- Mesic to Dry-Mesic Prairie
- Wet Prairie
- Marsh
- Wet Meadow
- Sedge Meadow
- Wet Forbland
- Wet Shrubland
- Forested Wetland
- Wet Floodplain Forest
- Farmed Wetland
- Marsh/Wet Meadow
- Wetland Pond/Marsh
- Wet Meadow/Wetland Pond
- Forested Wetland/Wetland Pond
- Marsh/Wet Shrubland
- Marsh/Wet Meadow/Wet Shrubland
- Forested Wetland/Wet Shrubland
- WetMeadow/Wet Shrubland
- Mining Area
- Barren Land
- Stream
- Riverine (River)
- Pond
- Wetland Pond
- Lacustrine (Lake)

N

Jarvis, 4/28/2013

Figure 2B. Aerial photograph showing vegetation/land cover-types, locations of state listed species (plants and insects), and high quality botanical sites, occurring within the IDOT Illiana Study Area, Seq. 16651A and 16651B, Will and Kankakee counties, Illinois.

Addendum B
Addendum A
Rail Roads
County Line

Cropland
Pasture and Hayland
Urban/Built-up/Developed Land
Forest
Tree Planting

Shrubland
Forbland
Non-native Grassland
Planted Prairie
Mesic to Dry-Mesic Prairie

Wet Prairie
Marsh
Wet Meadow
Sedge Meadow
Wet Forbland

Wet Shrubland
Forested Wetland
Wet Floodplain Forest
Farmed Wetland
Marsh/Wet Meadow

Wetland Pond/Marsh
Wet Meadow/Wetland Pond
Forested Wetland/Wetland Pond
Marsh/Wet Shrubland
Marsh/Wet Meadow/Wet Shrubland

Forested Wetland/Wet Shrubland
WetMeadow/Wet Shrubland
Mining Area
Barren Land
Stream

Riverine (River)
Pond
Wetland Pond
Lacustrine (Lake)

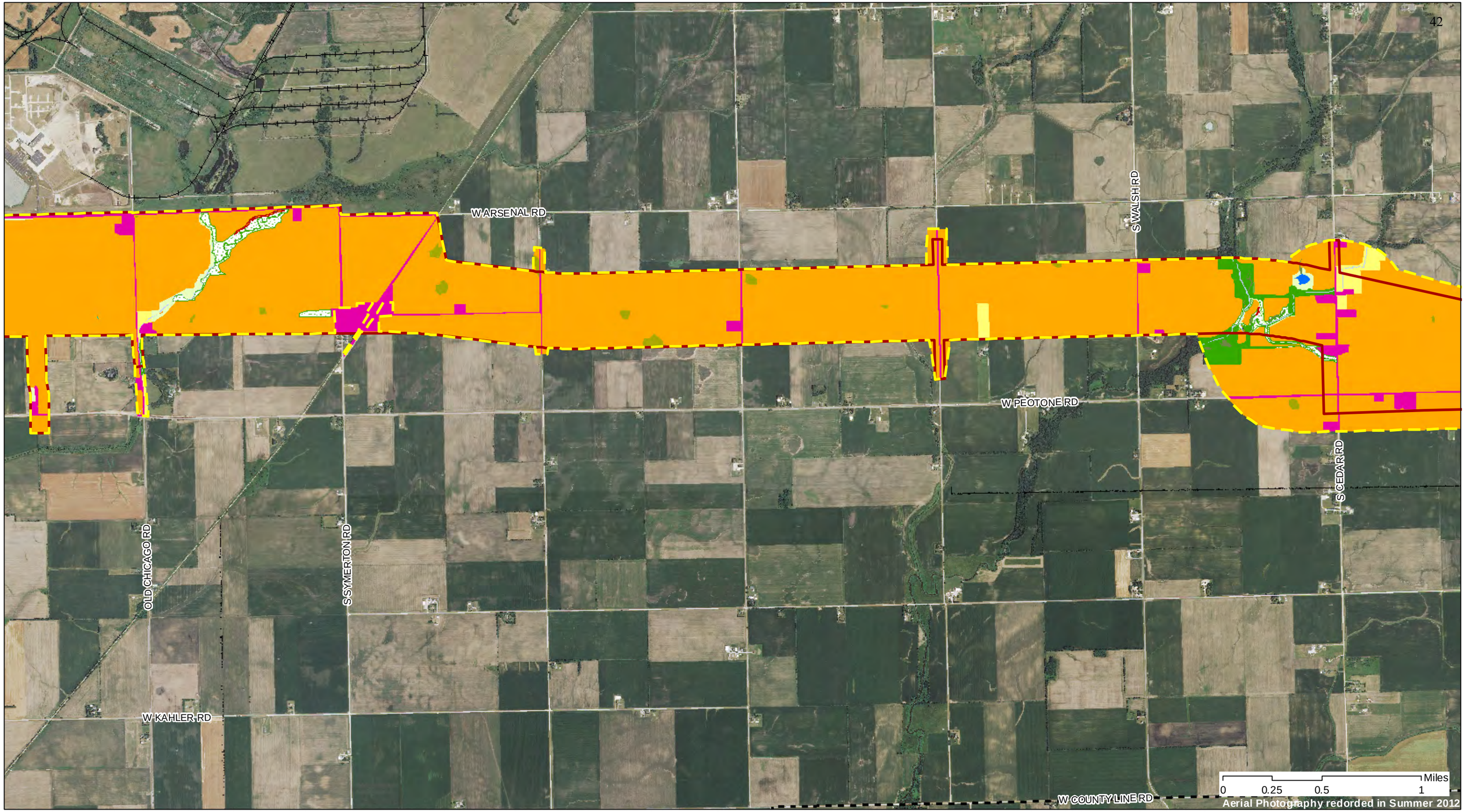

Figure 2C. Aerial photograph showing vegetation/land cover-types, locations of state listed species (plants and insects), and high quality botanical sites, occurring within the IDOT Illiana Study Area, Seq. 16651A and 16651B, Will and Kankakee counties, Illinois.

- Addendum B
- Addendum A
- Rail Roads
- County Line
- Cropland
- Pasture and Hayland
- Urban/Built-up/Developed Land
- Forest
- Tree Planting
- Shrubland
- Forbland
- Non-native Grassland
- Planted Prairie
- Mesic to Dry-Mesic Prairie
- Wet Prairie
- Marsh
- Wet Meadow
- Sedge Meadow
- Wet Forbland
- Wet Shrubland
- Forested Wetland
- Wet Floodplain Forest
- Farmed Wetland
- Marsh/Wet Meadow
- Wetland Pond/Marsh
- Wet Meadow/Wetland Pond
- Forested Wetland/Wetland Pond
- Marsh/Wet Shrubland
- Marsh/Wet Meadow/Wet Shrubland
- Forested Wetland/Wet Shrubland
- WetMeadow/Wet Shrubland
- Mining Area
- Barren Land
- Stream
- Riverine (River)
- Pond
- Wetland Pond
- Lacustrine (Lake)

N

Jarvis, 4/28/2013

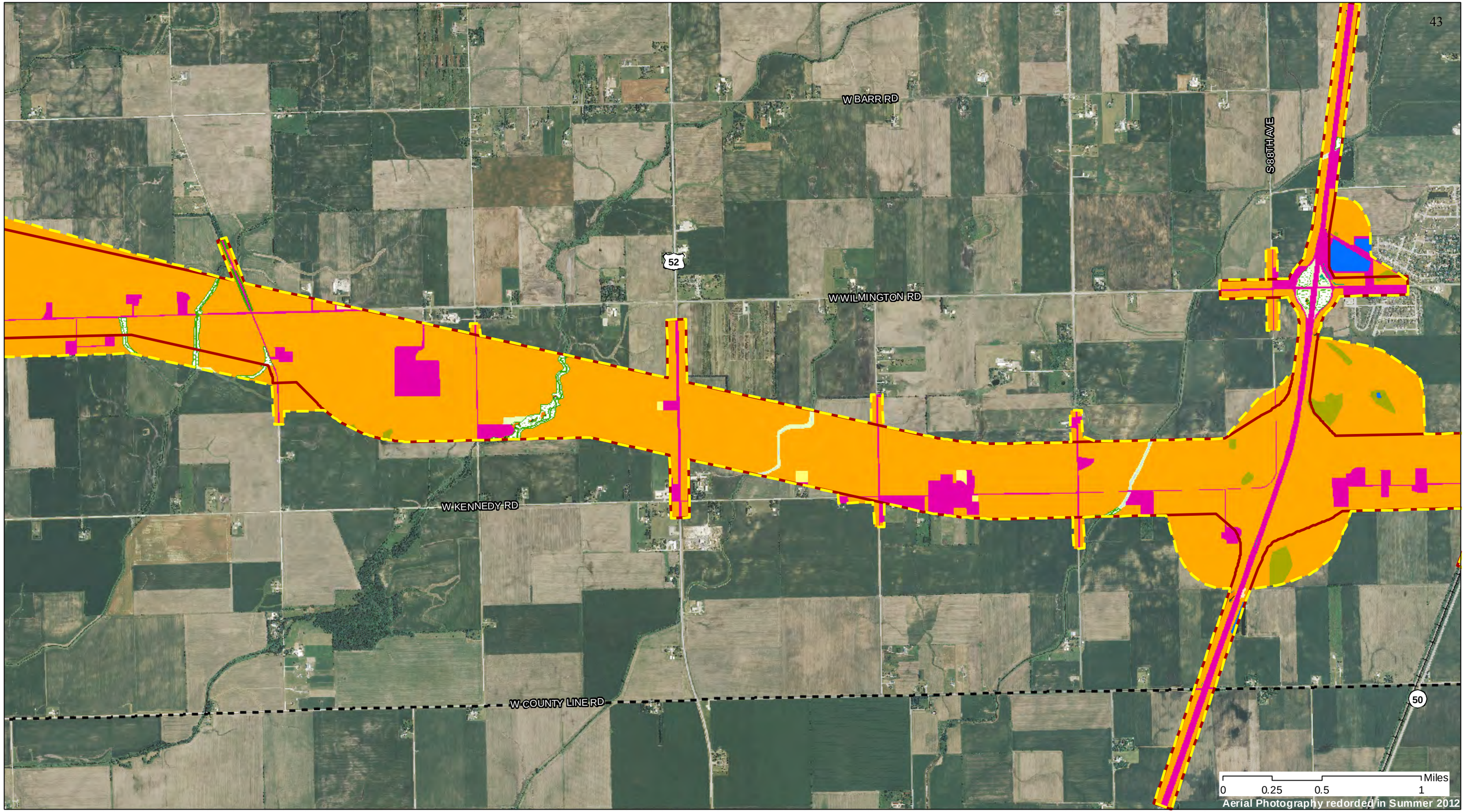

Figure 2D. Aerial photograph showing vegetation/land cover-types, locations of state listed species (plants and insects), and high quality botanical sites, occurring within the IDOT Illiana Study Area, Seq. 16651A and 16651B, Will and Kankakee counties, Illinois.

- Addendum B
- Addendum A
- Rail Roads
- County Line
- Cropland
- Pasture and Hayland
- Urban/Built-up/Developed Land
- Forest
- Tree Planting
- Shrubland
- Forbland
- Non-native Grassland
- Planted Prairie
- Mesic to Dry-Mesic Prairie
- Wet Prairie
- Marsh
- Wet Meadow
- Sedge Meadow
- Wet Forbland
- Wet Shrubland
- Forested Wetland
- Wet Floodplain Forest
- Farmed Wetland
- Marsh/Wet Meadow
- Wetland Pond/Marsh
- Wet Meadow/Wetland Pond
- Forested Wetland/Wetland Pond
- Marsh/Wet Shrubland
- Marsh/Wet Meadow/Wet Shrubland
- Forested Wetland/Wet Shrubland
- WetMeadow/Wet Shrubland
- Mining Area
- Barren Land
- Stream
- Riverine (River)
- Pond
- Wetland Pond
- Lacustrine (Lake)

N

Jarvis, 4/28/2013

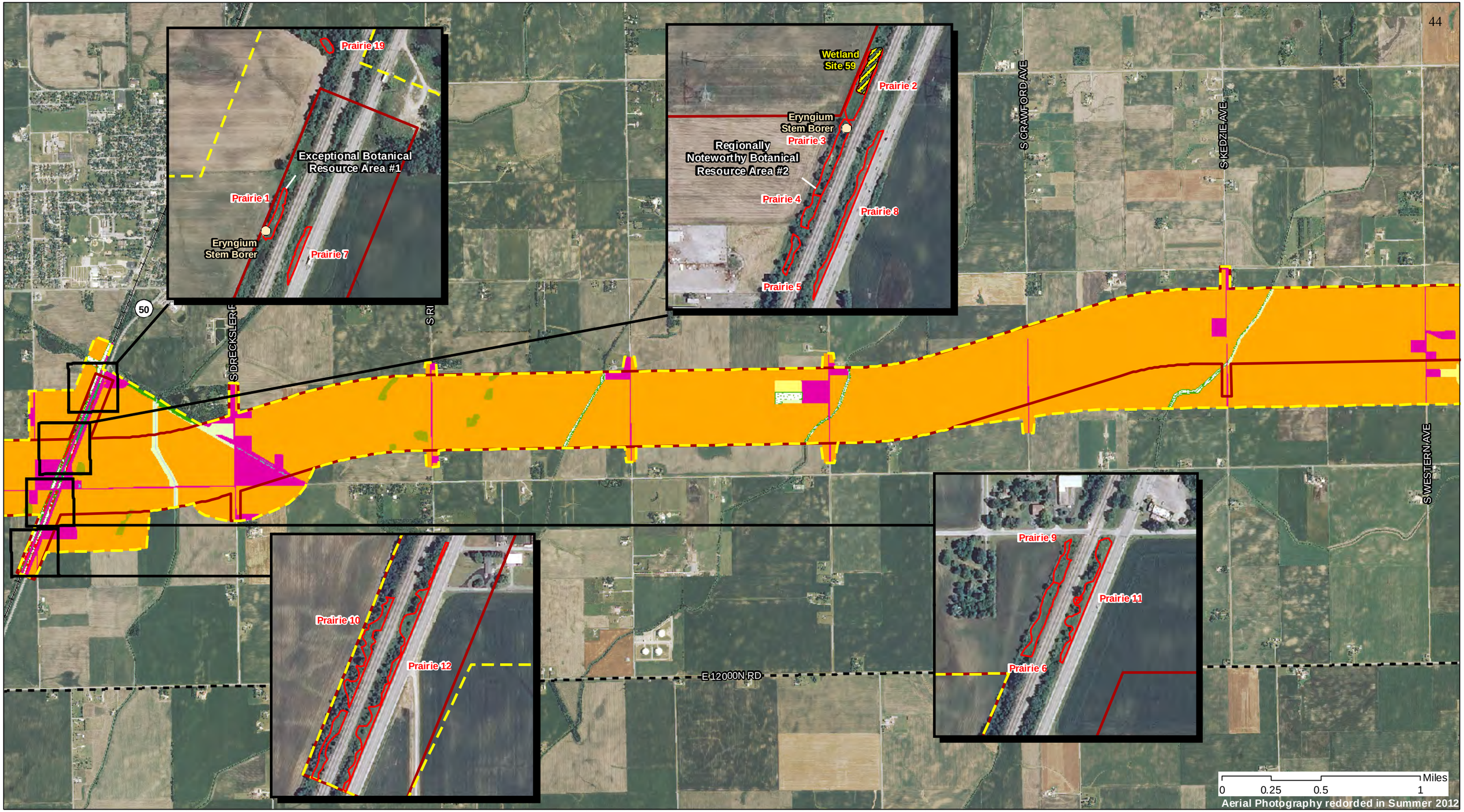

Figure 2E. Aerial photograph showing vegetation/land cover-types, locations of state listed species (plants and insects), and high quality botanical sites, occurring within the IDOT Illiana Study Area, Seq. 16651A and 16651B, Will and Kankakee counties, Illinois.

- Addendum B
- Addendum A
- Rail Roads
- County Line
- Cropland
- Pasture and Hayland
- Urban/Built-up/Developed Land
- Forest
- Tree Planting
- Shrubland
- Forbland
- Non-native Grassland
- Planted Prairie
- Mesic to Dry-Mesic Prairie
- Wet Prairie
- Marsh
- Wet Meadow
- Sedge Meadow
- Wet Forbland
- Wet Shrubland
- Forested Wetland
- Wet Floodplain Forest
- Farmed Wetland
- Marsh/Wet Meadow
- Wetland Pond/Marsh
- Wet Meadow/Wetland Pond
- Forested Wetland/Wetland Pond
- Marsh/Wet Shrubland
- Marsh/Wet Meadow/Wet Shrubland
- Forested Wetland/Wet Shrubland
- WetMeadow/Wet Shrubland
- Mining Area
- Barren Land
- Stream
- Riverine (River)
- Pond
- Wetland Pond
- Lacustrine (Lake)

N

Jarvis, 4/28/2013

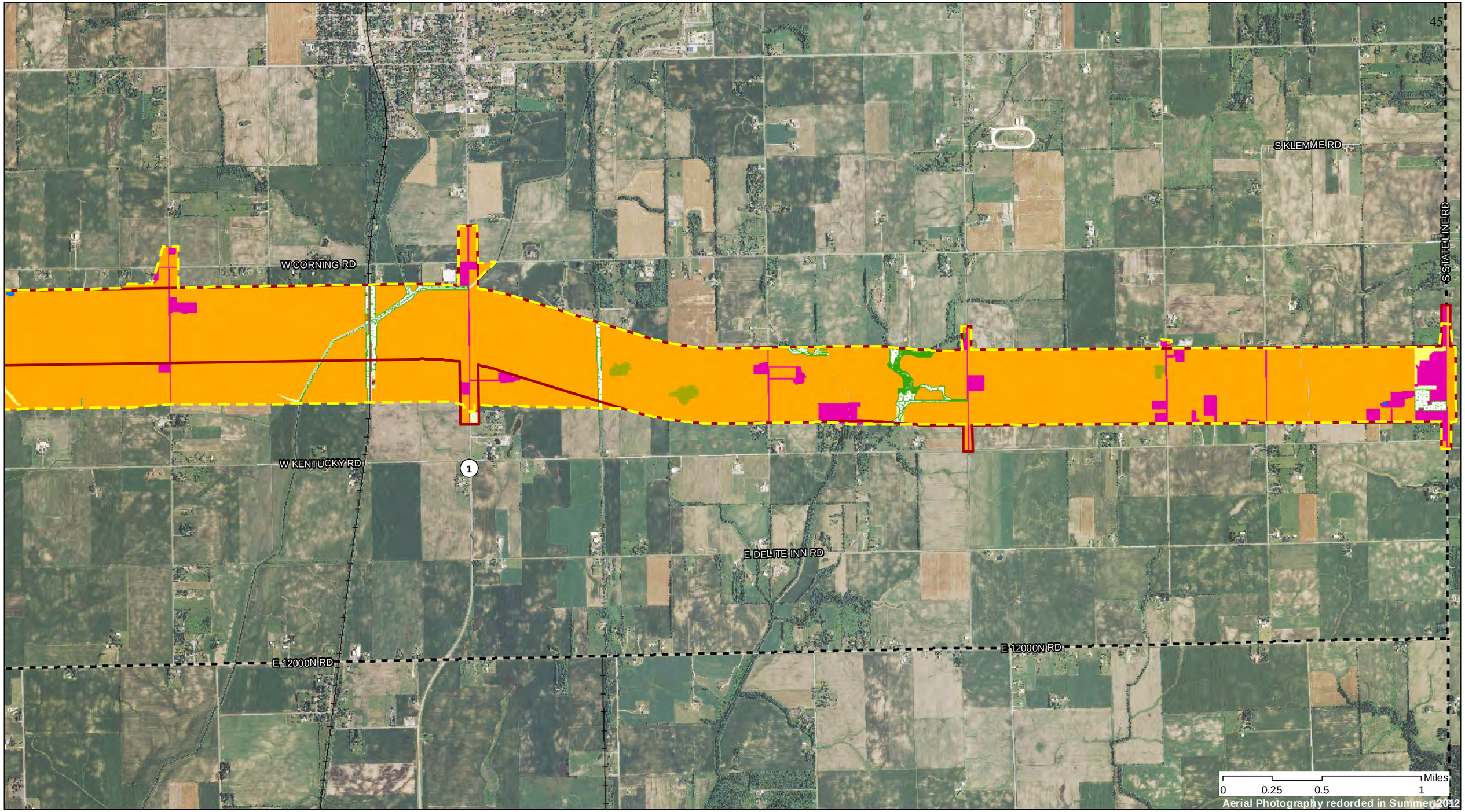

Figure 2F. Aerial photograph showing vegetation/land cover-types, locations of state listed species (plants and insects), and high quality botanical sites, occurring within the IDOT Illiana Study Area, Seq. 16651A and 16651B, Will and Kankakee counties, Illinois.

- Addendum B
- Addendum A
- Rail Roads
- County Line
- Cropland
- Pasture and Hayland
- Urban/Built-up/Developed Land
- Forest
- Tree Planting
- Shrubland
- Forbland
- Non-native Grassland
- Planted Prairie
- Mesic to Dry-Mesic Prairie
- Wet Prairie
- Marsh
- Wet Meadow
- Sedge Meadow
- Wet Forbland
- Wet Shrubland
- Forested Wetland
- Wet Floodplain Forest
- Farmed Wetland
- Marsh/Wet Meadow
- Wetland Pond/Marsh
- Wet Meadow/Wetland Pond
- Forested Wetland/Wetland Pond
- Marsh/Wet Shrubland
- Marsh/Wet Meadow/Wet Shrubland
- Forested Wetland/Wet Shrubland
- WetMeadow/Wet Shrubland
- Mining Area
- Barren Land
- Stream
- Riverine (River)
- Pond
- Wetland Pond
- Lacustrine (Lake)

N

Jarvis, 4/28/2013

Figure 3 A & B. Photographs of *Aster furcatus* (forked aster), a state threatened species found along the forested bluffs of the Kankakee River near Wilmington, IL, within the IDOT 2012 Illiana Study Area, Will County. **A** - forked aster flowers up close; **B** - colony of forked aster at base of bluffs.

A.

B.

Figure 4 A & B. Photographs of *Tomanthera auriculata* (ear-leaved foxglove), a state threatened species, found in the Illinois Department of Natural Resources Des Plaines State Conservation Area, in Wilmington, within the IDOT 2012 Illiana Study Area, Will County. **A** - ear-leaved foxglove flower up close; **B** - individual plant.

A.

B.

Figure 5 A & B. Photographs of habitat (wetland site #237 in INHS Wetlands Report) where *Tomanthera auriculata* (ear-leaved foxglove), a state threatened species, was found in the IDNR Des Plaines State Conservation Area, in Wilmington, within the IDOT 2012 Illiana Study Area, Will County. **A** - habitat just north of wetland site #237 where ear-leaved foxglove plants occurred; **B** - overview of wetland site # 237.

A.

B.

Figure 6 A & B. Photographs of **Regionally Noteworthy Botanical Resource Area #1** (Kankakee Bluffs), also the location of a newly discovered **forked aster** population, occurring along the Kankakee River near Wilmington, IL, within the IDOT 2012 Illiana Study Area, Will County. **A** - bluffs from a distance (facing southeast); **B** - steep terrace slope (facing northwest) at a time of severe flooding during late spring.

A.

B.

Figure 7 A & B. Photographs of **Regionally Noteworthy Botanical Resource Area #1** (Kankakee Bluffs), also the location of a newly discovered **forked aster** population, occurring along the Kankakee River near Wilmington, IL, within the IDOT 2012 Illiana Study Area, Will County. **A** - wild columbine (*Aquilegia canadensis* and wild geranium (*Geranium maculatum*) on highly diverse slope; **B** - yellow honeysuckle (*Lonicera prolifera*) a relatively common native honeysuckle vine, but usually not seen blooming.

A.

B.

Figure 8 A & B. Photographs of **Regionally Noteworthy Botanical Resource Area #1** (Kankakee Bluffs), also the location of a newly discovered **forked aster** population, occurring along the Kankakee River near Wilmington, IL, within the IDOT 2012 Illiana Study Area, Will County. **A** - drier and more open, diverse upland slope; **B** - sweet Indian plantain (*Cacalia suaveolens*), a relatively uncommon species in Illinois that typically growns in calcareous seepage habitats, and an associate of forked aster at this site.

A.

B.

Figure 9 A & B. Photographs of **Regionally Noteworthy Botanical Resource Area #2** (Prairie Site 3) (grade C+ to B- dry-mesic/mesic prairie) occurring along the west side of the Canadian National railroad, in Peotone, IL, within the IDOT 2012 Illiana Study Area, Will County. **A** - overview of a portion of this area; **B** - leadplant (*Amorpha canescens* - dark purple flowers), purple prairie clover (*Dalea purpurea* - light purple flower), prairie dock (*Silphium terebinthinaceum* - far left), and compass plant (*S. laciniatum* - far right).

A.

B.

Figure 10 A & B. Photographs of **Regionally Noteworthy Botanical Resource Area #2** (Prairie Site 3) (grade C+ to B- dry-mesic/mesic prairie) occurring along the west side of the Canadian National railroad, in Peotone, IL, within the IDOT 2012 Illiana Study Area, Will County. **A** - butterfly milkweed (*Asclepias tuberosa*); **B** - Michigan Lily (*Lilium michiganense*).

A.

B.

Figure 11 A & B. Photographs of **Exceptional Botanical Resource Area #1** (Prairie Site 1) (grade B to B+ dry-mesic/mesic prairie) occurring along the west side of the Canadian National railroad, in Peotone, IL, within the IDOT 2012 Illiana Study Area, Will County. **A** - site overview taken in late spring, facing south; **B** - mid summer photograph of *Sporobolus heterolepis* (prairie dropseed) dominated portion of this remnant.

A.

B.

Figure 12 A & B. Photographs of **Exceptional Botanical Resource Area #1** (Prairie Site 1) (grade B to B+ dry-mesic/mesic prairie) occurring along the west side of the Canadian National railroad, in Peotone, IL, within the IDOT 2012 Illiana Study Area, Will County. **A** - site overview taken in late summer, facing southwest; **B** - photograph of *Prenanthes aspera* (rough lettuce) a conservative species that's usually an indicator of higher quality remnant prairie.

A.

B.

Figure 13 A & B. Photographs of grade C dry-mesic/mesic prairie (including Prairie Sites 4, 5, 6, 7, 8, & 19) occurring along the Canadian National railroad and IL Route 50, in Peotone, IL, within the IDOT 2012 Illiana Study Area, Will County. **A** - segment of prairie (portion of Site 8) parallel to, and west of, IL Route 50, which was mowed early in the season; **B** - hoary puccoon (*Lithospermum canescens*) growing in a small area of Site 8 that was unmowed.

A.

B.

Figure 14 A & B. Photographs of grade C dry-mesic/mesic prairie (including Prairie Sites 4, 5, 6, 7, 8, & 19) occurring along the Canadian National railroad and IL Route 50, in Peotone, IL, within the IDOT 2012 Illiana Study Area, Will County. **A** - photograph of portion of Prairie Site 4, showing many individuals of leadplant (*Amorpha canescens*) occurring in a localized area; leadplant was otherwise uncommonn grade C remnant dry-mesic/mesic prairie habitats **B** - photograph of portion of Prairie Site 5.

A.

B.

Figure 15 A & B. Photographs of grade C- to D dry-mesic/mesic prairie (including Prairie Sites 9, 10, 11 & 12) occurring along the Canadian National railroad and IL Route 50, in Peotone, IL, within the IDOT 2012 Illiana Study Area, Will County. **A** - photograph of portion of Prairie Site 12, **B** - photograph showing portion of Prairie Site 10.

A.

B.

Figure 16 A & B. Photographs of Prairie Site #2 (grade C habitat complex of mesic/wet-mesic prairie and sedge meadow [Wetland Site 59]), occurring along the west side of the Canadian National railroad, in Peotone, IL, within the IDOT 2012 Illiana Study Area, Will County. **A** - mesic to wet-mesic prairie portion of this area, with cord grass (*Spartina pectinata*) in foreground; **B** - sedge meadow area (Wetland Site 59) dominated by tussock sedge (*Carex stricta*).

A.

B.

Figure 17 A & B. Photographs of Prairie Site #2 (grade C habitat complex of mesic/wet-mesic prairie and sedge meadow [Wetland Site 59]), occurring along the west side of the Canadian National Railroad, in Peotone, IL, within the IDOT 2012 Illiana Study Area, Will County. **A** - smooth phlox (*Phlox glaberrima* var. *interior*) growing in mesic/wet-mesic prairie; **B** - swamp milkweed (*Asclepias incarnata*) growing with tussock sedge (*Carex stricta*) in Wetland Site 59.

A.

B.

Figure 18 A & B. Photographs of grade C- to D+ dry-mesic sand prairie (Prairie Site 13) occurring west of Wilmington, IL, within the IDOT 2012 Illiana Study Area, Will County. **A** - site overview; **B** - photograph of rough blazing star (*Liatris aspera*), the only conservative species that was somewhat common at this site.

A.

B.

Figure 19 A & B. Photographs of grade C- to D+ dry-mesic sand prairie (Prairie Sites 14 & 15) occurring along Interstate-55 west of Wilmington, IL, within the IDOT 2012 Illiana Study Area, Will County. **A** - Prairie Site 14, woody species encroachment, which was highly advanced in this area, can be seen in the background and on the sides of the open habitat shown in this picture; **B** - photograph of downy sunflower (*Helianthus mollis*), one of the more abundant conservative species at this site.

A.

B.

Figure 20 A & B. Photographs of grade C- to D+ dry-mesic/mesic sand prairie (Prairie Site 16) occurring west of Wilmington, IL, within the IDOT 2012 Illiana Study Area, Will County. **A** - site overview, facing south; **B** - site overview, facing north.

A.

B.

Figure 21 A & B. Photographs of grade C- to D+ dry-mesic/mesic sand prairie (Prairie Site 16) occurring west of Wilmington, IL, within the IDOT 2012 Illiana Study Area, Will County. **A** - sand milkweed (*Asclepias amplexicaulis*); **B** - eastern prickly pear cactus (*Opuntia humifusa*), a dominant species in several areas of this remnant habitat.

A.

B.

Figure 22 A & B. No photographs were taken at Prairie Site 17, but photographs shown here pertian to Prairie Site 17 as follows: **A** - Photograph of grade C- to D+ dry-mesic sand prairie (Prairie Site 14), which was located approximately 350 ft. northeast of Prairie Site 17 and had a very similar structure (both sites were being heavily invaded by woody species); **B** - photograph of rattlesnake master (*Eryngium yuccifolium*), which is the host plant for the Eryngium Stem Borer Moth (*Papaipema eryngii*), taken at Prairie Site 3. In addition to occurring at Prairie Sites 1 and 3, the stem borer moth was also found at Prairie Site 17.

A.

B.

Figure 23 A & B. Photographs of dry-mesic sand forest near Wilmington, IL, within the IDOT 2012 Illiana Study Area, Will County. **A** - photograph (taken in April at Forest Site 3) of this habitat type showing dense growth of shrubs and trees, largely due to fire-suppression, **B** - small area within this habitat type showing the more open structure historically characteristic of these woodlands. Open areas like this were small, infrequent and scattered, with the herbaceous ground flora dominated by sedges; especially Pennsylvania oak sedge (*Carex pensylvanica*) and running savanna sedge (*Carex foenea*).

A.

B.

Figure 24 A & B. Photographs of mesic/wet-mesic floodplain forest occurring within the IDOT 2012 Illiana Study Area, Will County. **A** - photograph of this habitat type along Forked Creek, approximately 8 miles west of Peotone, IL. Forked Creek and the Kankakee River were the two areas within the study area where this habitat type occurred, with the vast majority occurring along the Kankakee River. **B** - photograph of the Kankakee River and floodplain forest on the north side of the river, near Wilmington.

A.

B.

Appendix 2

Tables

Table 1. Total land area represented by vegetation/land cover-types, in decreasing rank order, occurring within the IDOT Illiana Study Area (15,701 acres) in Will and Kankakee counties, Illinois. Wetland cover-types (n = 18) are indicated with an asterisk (*).

Vegetation/Land-Cover Types (n = 34)	Acres	% Total Land Cover
Cropland	11376.78	72.46
Urban/Built-up/Developed	2081.57	13.26
Forest	533.28	3.40
Shrubland	459.29	2.93
Pasture and Hayland	305.84	1.95
Non-native Grassland	247.73	1.58
Riverine (River)	213.54	1.36
Farmed Wetland*	101.67	0.65
Forested Wetland*	81.15	0.52
Mining Area	47.63	0.30
Marsh*	32.88	0.21
Stream	31.54	0.20
Pond (non-wetland)	26.57	0.17
Planted Prairie	23.17	0.15
Wet Meadow*	22.63	0.14
Wetland Pond*	19.08	0.12
Wet Shrubland*	17.35	0.11
Prairie	14.49	0.09
Barren Land	11.53	0.07
Wet Forbland*	8.12	0.05
Wet Marsh/Wet Meadow*	7.43	0.05
Wet Floodplain Forest*	6.70	0.04
Lacustrine (Lake)	4.85	0.03
Forbland	4.46	0.03
Forested Wetland/Wetland Pond*	3.57	0.02
Wet Meadow/Wetland Pond*	3.49	0.02
Wetland Pond/Marsh*	3.36	0.02
Tree Planting	3.11	0.02
Marsh/Wet Meadow/Wet Shrubland*	2.83	0.02
Forested Wetland/Wet Shrubland*	2.09	0.01
Wet Meadow/Wet Shrubland*	1.30	0.01
Sedge Meadow*	0.80	0.01
Wet Prairie*	0.63	0.004
Marsh/Wet Shrubland*	0.51	0.003
Totals	**15700.95**	**100.00**

Table 2. Population data for ***Aster furcatus*** **(forked aster)** population found along the forested bluffs of the Kankakee River, near Wilmington, IL, within the IDOT 2012 Illiana Study Area, Will County. Colony numbers correspond to numbered points shown in **App. 1, Fig. 2B**. GPS coordinates are WGS84/NAD83.

Colony Number	Latitude	Longitude	Total number of flowering stems
1	41.32525	-88.18217	50
2	41.32508	-88.18211	125
3	41.32492	-88.18162	50
4	41.32492	-88.18161	30
5	41.32488	-88.18156	50
6	41.32477	-88.18163	1
7	41.32477	-88.18167	3
8	41.32475	-88.18172	60
9	41.32474	-88.18174	18
10	41.32475	-88.18179	7
11	41.32469	-88.18159	50
12	41.32470	-88.18152	100
13	41.32468	-88.18145	40
14	41.32469	-88.18140	70
15	41.32466	-88.18126	40
16	41.32460	-88.18116	12
17	41.32372	-88.17910	18
18	41.32371	-88.17910	12
19	41.32373	-88.17896	3
20	41.32370	-88.17910	14
21	41.32377	-88.17907	1
22	41.32402	-88.17943	6
23	41.32404	-88.17951	42
24	41.32341	-88.17751	4
25	41.32346	-88.17789	1
26	41.32368	-88.17848	4
27	41.32352	-88.17784	12
28	41.32328	-88.17725	3
29	41.32324	-88.17699	12
30	41.32331	-88.17700	14
31	41.32343	-88.17709	8
32	41.32312	-88.17625	24
33	41.32302	-88.17557	34
34	41.32300	-88.17579	40
35	41.32303	-88.17591	7
36	41.32269	-88.17588	42
37	41.32276	-88.17583	32
38	41.32244	-88.17647	110
Totals			**1149**

Table 3. Floristic quality assessment and cumulative list of vascular plant species occurring in **Regionally Noteworthy Botanical Resource Area #1** (7.6 acres) and **forked aster** habitat occurring along forested bluffs on the south side of the Kankakee River, northwest of Wilmington, in the IDOT 2012 Illiana Study Area, Will County, IL. Abbreviations are as follows: **FQI** = floristic quality index; **C** = coefficient of conservatism; **W** = numeric wetness values for wetland categories (see end of table); **Wetness** = wetland classification category (see end of table); **Physiog.** = physiognomy (combination of structural attributes, life history and taxonomic classification); and **Rel. Abun.** = Relative abundance: **1** = rare, **2** = occasional, **3** = common, **4** = abundant, **5** = very abundant (community dominant). Single letter prefixes accompanying Forb, Grass, Sedge, or Vine classifications are: **A** = annual, **B** = bienniel, **H** = herbaceous, **P** = perennial, and **W** = woody. Scientific names in all capital letters indicate taxa adventive to the region. Species in bold type are community dominants or subdominants. **Associate species** within various habitats in which **forked aster** was found are provided using the following letters next to scientific names of corresponding species: **S** = associate in seepage habitats (mid and lower terrace); **M** = associate in mesic mid terrace habitats; and **U** = associate in drier upland and upper terrace habitats.

FLORISTIC QUALITY DATA	Native	168	95.5%	Adventive	8	4.5%
168 NATIVE SPECIES	Tree	20	11.4%	Tree	0	0.0%
176 Total Species	Shrub	19	10.8%	Shrub	3	1.7%
4.0 NATIVE MEAN C	W-Vine	9	5.1%	W-Vine	0	0.0%
3.8 W/Adventives	H-Vine	3	1.7%	H-Vine	0	0.0%
51.9 NATIVE FQI	P-Forb	82	46.6%	P-Forb	2	1.1%
50.7 W/Adventives	B-Forb	4	2.3%	B-Forb	1	0.6%
1.6 NATIVE MEAN W	A-Forb	6	3.4%	A-Forb	0	0.0%
1.7 W/Adventives	P-Grass	9	5.1%	P-Grass	2	1.1%
AVG: Fac. Upland (+)	A-Grass	0	0.0%	A-Grass	0	0.0%
	P-Sedge	11	6.3%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Fern	5	2.8%			

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
4	Acer saccharum **(M)**	3	FACU	Tree	SUGAR MAPLE	3-4
4	Agastache nepetoides **(M)**	3	FACU	P-Forb	YELLOW GIANT HYSSOP	2
3	Agrimonia gryposepala	2	FACU+	P-Forb	TALL AGRIMONY	2
0	ALLIARIA PETIOLATA	0	FAC	B-Forb	GARLIC MUSTARD	2-3
2	Allium canadense	3	FACU	P-Forb	WILD GARLIC	3
6	Amorpha fruticosa **(S)**	-4	FACW+	Shrub	FALSE INDIGO BUSH	2
4	Amphicarpaea bracteata **(S, M)**	0	FAC	H-Vine	HOG PEANUT	2-3
4	Anemone virginiana **(M, U)**	5	UPL	P-Forb	TALL ANEMONE	2-3
6	Apocynum androsaemifolium **(U)**	5	UPL	P-Forb	SPREADING DOGBANE	3
2	Apocynum cannabinum	0	FAC	P-Forb	DOGBANE	2-3
5	Aquilegia canadensis **(M)**	1	FAC-	P-Forb	WILD COLUMBINE	2-3
4	Arabis laevigata **(M)**	5	UPL	B-Forb	SMOOTH ROCK CRESS	3-4
6	Arabis shortii **(M)**	5	UPL	B-Forb	TOOTHED CRESS	3
4	Arisaema triphyllum **(M)**	-2	FACW-	P-Forb	INDIAN TURNIP	3-4
5	Asarum canadense **(M)**	5	UPL	P-Forb	CANADA WILD GINGER	3-4
3	Aster drummondii	3	FACU	P-Forb	DRUMMOND'S ASTER	3
9	**Aster furcatus (State Threatened)**	5	UPL	P-Forb	FORKED ASTER	3
2	Aster lateriflorus **(M)**	-2	FACW-	P-Forb	SIDE-FLOWERING ASTER	3-4
4	Aster sagittifolius **(M)**	5	UPL	P-Forb	ARROW-LEAVED ASTER	3-4
7	Astragalus canadensis **(M)**	-1	FAC+	P-Forb	CANADIAN MILK VETCH	1
4	Botrychium virginianum	3	FACU	Fern	RATTLESNAKE FERN	3
5	Bromus pubescens **(M)**	2	FACU+	P-Grass	WOODLAND BROME	3
10	Cacalia suaveolens **(S)**	-5	OBL	P-Forb	SWEET INDIAN PLANTAIN	2-3
4	Campanula americana **(U)**	0	FAC	A-Forb	AMERICAN BELLFLOWER	4
4	Carex aggregata	5	UPL	P-Sedge	SMOOTH CLUSTERED SEDGE	2
2	Carex blanda	0	FAC	P-Sedge	COMMON WOOD SEDGE	3-4
3	Carex cephalophora **(M, U)**	3	FACU	P-Sedge	SHORT-HEADED SEDGE	3-4
5	Carex conjuncta **(S)**	-3	FACW	P-Sedge	GREEN-HEADED FOX SEDGE	1
3	Carex davisii **(M)**	-1	FAC+	P-Sedge	AWNED GRACEFUL SEDGE	3
3	Carex grisea **(M)**	5	UPL	P-Sedge	WOOD GRAY SEDGE	3-4

Table 3 continued

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
2	Carex molesta	0	FAC	P-Sedge	FIELD OVAL SEDGE	2
5	**Carex pensylvanica (M, U)**	**5**	**UPL**	**P-Sedge**	**PENNSYLVANIA OAK SEDGE**	**4-5**
5	Carex rosea	5	UPL	P-Sedge	CURLY-STYLED WOOD SEDGE	3-4
4	Carex sparganioides **(M)**	0	FAC	P-Sedge	LOOSE-HEADED SEDGE	3-4
8	Carex swanii	3	FACU	P-Sedge	DOWNY GREEN SEDGE	2-3
4	Carya cordiformis	0	FAC	Tree	BITTERNUT HICKORY	3
4	Carya ovata	3	FACU	Tree	SHAGBARK HICKORY	3-4
2	Celastrus scandens	3	FACU	W-Vine	CLIMBING BITTERSWEET	2-3
3	Celtis occidentalis **(S, M)**	1	FAC-	Tree	HACKBERRY	2-3
4	Cerastium arvense	4	FACU-	P-Forb	FIELD CHICKWEED	3
5	Cinna arundinacea **(S, M)**	-3	FACW	P-Grass	COMMON WOOD REED	3
2	Circaea lutetiana v. canadensis **(M)**	3	FACU	P-Forb	ENCHANTER'S NIGHTSHADE	3-4
1	Claytonia virginica	3	FACU	P-Forb	SPRING BEAUTY	3-4
4	Clematis pitcheri **(M)**	3	FACU	W-Vine	LEATHER FLOWER	2
2	Cornus racemosa	-2	FACW-	Shrub	GRAY DOGWOOD	2
4	Cornus stolonifera **(S)**	-3	FACW	Shrub	RED OSIER DOGWOOD	1
4	Corylus americana **(S, M)**	0	FAC	Shrub	AMERICAN FILBERT	3
2	Crataegus mollis	-2	FACW-	Tree	DOWNY HAWTHORN	2
1	Cryptotaenia canadensis **(M)**	0	FAC	P-Forb	HONEWORT	3
4	Cystopteris protrusa	3	FACU	Fern	HYBRID FRAGILE FERN	3
0	DACTYLIS GLOMERATA	3	FACU	P-Grass	ORCHARD GRASS	1
3	Danthonia spicata	5	UPL	P-Grass	POVERTY OAT GRASS	1-2
4	Dentaria laciniata **(M)**	4	FACU	P-Forb	TOOTHWORT	3-4
3	Desmodium glutinosum **(U)**	5	UPL	P-Forb	POINTED TICK TREFOIL	3
5	Dicentra cucullaria	5	UPL	P-Forb	DUTCHMAN'S BREECHES	3-4
4	Dioscorea villosa **(M)**	1	FAC-	H-Vine	WILD YAM	3
0	ELAEAGNUS UMBELLATA **(M)**	5	UPL	Shrub	AUTUMN OLIVE	3
1	Ellisia nyctelea	-1	FAC+	A-Forb	AUNT LUCY	3
5	Elymus hystrix **(U)**	5	UPL	P-Grass	BOTTLEBRUSH GRASS	3
4	Elymus villosus **(M)**	3	FACU	P-Grass	SILKY WILD RYE	3-4
4	Elymus virginicus	-2	FACW-	P-Grass	VIRGINIA WILD RYE	2
0	Equisetum arvense **(S)**	0	FAC	Fern	COMMON HORSETAIL	1
3	Erigeron philadelphicus **(S, M)**	-3	FACW	P-Forb	MARSH FLEABANE	3
4	Erythronium albidum	5	UPL	P-Forb	WHITE ADDER'S TONGUE	3
5	Euonymus atropurpureus	1	FAC-	Shrub	WAHOO	2
2	Eupatorium rugosum **(M, U)**	3	FACU	P-Forb	WHITE SNAKEROOT	3-4
5	Eupatorium purpureum	0	FAC	P-Forb	PURPLE JOE PYE WEED	2
3	Euphorbia corollata	5	UPL	P-Forb	FLOWERING SPURGE	2
5	Festuca obtusa **(M)**	2	FACU+	P-Grass	NODDING FESCUE	3-4
4	Fraxinus americana **(M, U)**	3	FACU	Tree	WHITE ASH	3
2	Fraxinus pennsylvanica v. subintegerrima **(M)**	-3	FACW	Tree	GREEN ASH	2
6	Fraxinus quadrangulata	5	UPL	Tree	BLUE ASH	1
0	Galium aparine	3	FACU	A-Forb	ANNUAL BEDSTRAW	3
4	Galium circaezans **(U)**	4	FACU-	P-Forb	WILD LICORICE	3-4
4	Galium concinnum	3	FACU	P-Forb	SHINING BEDSTRAW	3
4	Galium triflorum	2	FACU+	P-Forb	SWEET-SCENTED BEDSTRAW	2
4	Geranium maculatum **(M)**	3	FACU	P-Forb	WILD GERANIUM	3
2	Gleditsia triacanthos	0	FAC	Tree	HONEY LOCUST	2
3	Helenium autumnale **(S)**	-4	FACW+	P-Forb	SNEEZEWEED	2
5	Helianthus divaricatus	5	UPL	P-Forb	WOODLAND SUNFLOWER	3-4
3	Helianthus strumosus **(M)**	5	UPL	P-Forb	PALE-LEAVED SUNFLOWER	2
0	HEMEROCALLIS FULVA	5	UPL	P-Forb	ORANGE DAY LILY	1
7	Hepatica nobilis v. acuta **(M)**	5	UPL	P-Forb	SHARP-LOBED HEPATICA	3-4
0	HESPERIS MATRONALIS	5	UPL	P-Forb	DAME'S ROCKET	2

Table 3 continued

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
5	Hydrophyllum virginianum **(S)**	-2	FACW-	P-Forb	VIRGINIA WATERLEAF	3-4
2	Impatiens capensis **(S)**	-3	FACW	A-Forb	SPOTTED TOUCH-ME-NOT	2-3
4	Impatiens pallida	-3	FACW	A-Forb	PALE TOUCH-ME-NOT	1
4	Juglans nigra	3	FACU	Tree	BLACK WALNUT	3
4	Lactuca floridana **(M)**	1	FAC-	B-Forb	BLUE LETTUCE	3-4
2	Laportea canadensis **(S)**	-3	FACW	P-Forb	CANADA WOOD NETTLE	2-3
4	Leersia virginica **(S, M)**	-3	FACW	P-Grass	WHITE GRASS	3
0	LONICERA MAACKII **(M)**	5	UPL	Shrub	AMUR HONEYSUCKLE	3
5	Lonicera prolifera **(M)**	5	UPL	W-Vine	GRAPE HONEYSUCKLE	3
9	Matteuccia struthiopteris (possibly native)	-3	FACW	Fern	OSTRICH FERN	1
4	Menispermum canadense	-1	FAC+	W-Vine	MOONSEED	3
7	Moehringia lateriflora **(M)**	3	FACU	P-Forb	BLUNT-LEAF SANDWORT	3
4	Morus rubra **(M)**	1	FAC-	Tree	RED MULBERRY	2-3
5	Onoclea sensibilis **(S)**	-3	FACW	Fern	SENSITIVE FERN	2
3	Osmorhiza longistylis	4	FACU-	P-Forb	ANISE ROOT	3
4	Ostrya virginiana **(M, U)**	4	FACU-	Tree	HOP HORNBEAM	3-4
5	Panicum latifolium	3	FACU	P-Grass	BROAD-LEAVED PANIC GRASS	3
2	Parthenocissus quinquefolia **(S, M, U)**	1	FAC-	W-Vine	VIRGINIA CREEPER	3-4
3	Penstemon calycosus **(U)**	3	FACU	P-Forb	SMOOTH BEARD TONGUE	2
6	Perideridia americana	5	UPL	P-Forb	THICKET PARSLEY	2-3
0	PHALARIS ARUNDINACEA **(S)**	-4	FACW+	P-Grass	REED CANARY GRASS	2
5	Phlox divaricata **(M)**	3	FACU	P-Forb	BLUE PHLOX	3-4
4	Phryma leptostachya **(M, U)**	5	UPL	P-Forb	LOPSEED	3-4
7	Physocarpus opulifolius **(M)**	-2	FACW-	Shrub	COMMON NINEBARK	3-4
6	Physostegia virginiana **(S)**	-3	FACW	P-Forb	OBEDIENT PLANT	2
1	Phytolacca americana	1	FAC-	P-Forb	POKEWEED	2
4	Podophyllum peltatum **(M)**	3	FACU	P-Forb	MAY APPLE	3
5	Polemonium reptans	0	FAC	P-Forb	JACOB'S LADDER	2
4	Polygonatum commutatum **(S, M)**	3	FACU	P-Forb	GREAT SOLOMON SEAL	3-4
3	Polygonum virginianum **(M)**	0	FAC	P-Forb	VIRGINIA KNOTWEED	3
2	Populus deltoides **(S)**	-1	FAC+	Tree	EASTERN COTTONWOOD	2
3	Potentilla simplex	4	FACU-	P-Forb	COMMON CINQUEFOIL	3
5	Prenanthes alba **(M)**	3	FACU	P-Forb	LION'S FOOT	2-3
1	Prunus serotina **(M, U)**	3	FACU	Tree	WILD BLACK CHERRY	3-4
3	Prunus virginiana **(M)**	1	FAC-	Shrub	COMMON CHOKE CHERRY	3
6	Psoralea onobrychis **(U)**	5	UPL	P-Forb	FRENCH GRASS	1
4	Ptelea trifoliata **(M)**	2	FACU+	Shrub	WAFER ASH	2-3
5	**Quercus alba (M, U)**	**3**	**FACU**	**Tree**	**WHITE OAK**	**4**
5	**Quercus macrocarpa (M, U)**	**1**	**FAC-**	**Tree**	**BURR OAK**	**4**
5	**Quercus rubra (M, U)**	**3**	**FACU**	**Tree**	**NORTHERN RED OAK**	**4**
5	**Quercus velutina**	**5**	**UPL**	**Tree**	**BLACK OAK**	**4**
1	Ranunculus abortivus **(S)**	-2	FACW-	A-Forb	LITTLE-LEAF BUTTERCUP	3
4	Ranunculus septentrionalis **(S, M)**	-4	FACW+	P-Forb	SWAMP BUTTERCUP	3-4
1	Rhus glabra	5	UPL	Shrub	SMOOTH SUMAC	2-3
2	Ribes missouriense **(M)**	5	UPL	Shrub	MISSOURI GOOSEBERRY	2-3
4	Rosa carolina **(U)**	4	FACU-	Shrub	PASTURE ROSE	3
0	ROSA MULTIFLORA	3	FACU	Shrub	JAPANESE ROSE	3
2	Rubus allegheniensis	2	FACU+	Shrub	COMMON BLACKBERRY	2
2	Rubus flagellaris **(U)**	4	FACU-	Shrub	COMMON DEWBERRY	3
2	Rubus occidentalis	3	FACU	Shrub	BLACK RASPBERRY	2
2	Rubus pensylvanicus	1	FAC-	Shrub	YANKEE BLACKBERRY	3
3	Rudbeckia laciniata **(S)**	-4	FACW+	P-Forb	WILD GOLDEN GLOW	2-3
2	Sambucus canadensis	4	FACU-	Shrub	COMMON ELDER	2-3
5	Sanguinaria canadensis **(M)**	4	FACU-	P-Forb	BLOODROOT	3-4

Table 3 continued

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
4	Sanicula canadensis	2	FACU+	B-Forb	CANADIAN BLACK SNAKEROOT	3
2	Sanicula gregaria **(M)**	-1	FAC+	P-Forb	CLUSTERED BLACK SNAKEROOT	3
5	Scrophularia lanceolata **(U)**	2	FACU+	P-Forb	EARLY FIGWORT	2
4	Scrophularia marilandica **(M)**	4	FACU-	P-Forb	LATE FIGWORT	2-3
9	Sedum ternatum	5	UPL	P-Forb	THREE-LEAVED STONECROP	2
6	Silene stellata **(M)**	5	UPL	P-Forb	STARRY CAMPION	2-3
4	Silphium perfoliatum **(S)**	-2	FACW-	P-Forb	CUP PLANT	1-2
4	**Smilacina racemosa (M, U)**	**3**	**FACU**	**P-Forb**	**FEATHERY FALSE SOLOMON SEAL**	**4**
5	Smilacina stellata **(M, U)**	1	FAC-	P-Forb	STARRY FALSE SOLOMON SEAL	3-4
5	Smilax ecirrhata	5	UPL	P-Forb	UPRIGHT CARRION FLOWER	2-3
3	Smilax hispida	0	FAC	W-Vine	BRISTLY GREEN BRIER	3
4	Smilax lasioneuron **(M)**	5	UPL	H-Vine	COMMON CARRION FLOWER	3
6	**Solidago flexicaulis (M, S, U)**	**3**	**FACU**	**P-Forb**	**BROAD-LEAVED GOLDENROD**	**4-5**
3	Solidago gigantea **(S)**	-3	FACW	P-Forb	LATE GOLDENROD	2
5	**Solidago ulmifolia (M, U)**	**5**	**UPL**	**P-Forb**	**ELM-LEAVED GOLDENROD**	**4-5**
5	Stachys tenuifolia **(S)**	-5	OBL	P-Forb	SMOOTH HEDGE NETTLE	2
5	Staphylea trifolia **(M)**	0	FAC	Shrub	BLADDERNUT	3
7	Taenidia integerrima	5	UPL	P-Forb	YELLOW PIMPERNEL	2-3
3	Teucrium canadense v. virginicum	-2	FACW-	P-Forb	AMERICAN GERMANDER	2
5	Thalictrum revolutum **(M)**	0	FAC	P-Forb	WAXY MEADOW RUE	2
6	Thaspium trifoliatum **(M)**	5	UPL	P-Forb	PURPLE MEADOW PARSNIP	1
5	**Tilia americana (S, M, U)**	**3**	**FACU**	**Tree**	**AMERICAN BASSWOOD**	**4**
1	Toxicodendron radicans **(M, U)**	3	FACU	W-Vine	POISON IVY	3-4
3	Tradescantia ohiensis	2	FACU+	P-Forb	COMMON SPIDERWORT	3
5	Trillium recurvatum	4	FACU-	P-Forb	RED TRILLIUM	3
5	Triosteum aurantiacum **(M)**	5	UPL	P-Forb	EARLY HORSE GENTIAN	2
5	Ulmus americana	-2	FACW-	Tree	AMERICAN ELM	3-4
2	Urtica dioica **(S)**	-1	FAC+	P-Forb	TALL NETTLE	2
7	Uvularia grandiflora **(M)**	5	UPL	P-Forb	BELLWORT	3
3	Verbena urticifolia **(S)**	-1	FAC+	P-Forb	WHITE VERVIAN	2
4	Verbesina alternifolia **(S)**	-3	FACW	P-Forb	WINGSTEM	2-3
6	Veronicastrum virginicum **(M)**	0	FAC	P-Forb	CULVER'S ROOT	2-3
4	Viburnum lentago **(S, M)**	-1	FAC+	Shrub	NANNYBERRY	3-4
7	Viola pubescens **(M)**	4	FACU-	P-Forb	DOWNY YELLOW VIOLET	3
4	Vitis cinerea **(S, M)**	-2	FACW-	W-Vine	WINTER GRAPE	3
2	Vitis riparia **(S, M)**	-2	FACW-	W-Vine	RIVERBANK GRAPE	3
4	Zanthoxylum americanum **(M)**	5	UPL	Shrub	PRICKLY ASH	2
6	Zizia aurea **(S)**	-1	FAC+	P-Forb	GOLDEN ALEXANDERS	2

Wetland classification categories follow Reed (1988) for Region 3. Further details are from Taft et al. (1997). Plants are placed within one of five wetland indicator categories: Obligate Wetland (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU), and Upland (UPL). Within any of these five categories, a "+" indicates that a particular taxon has a greater tendency to occur in wetlands while a "-" indicates a lesser tendency. Following this, indicator status categories, in descending order of probability of occurrence in wetland habitat, would be:

-5 Obligate Wetland	(OBL)
-4 Facultative Wetland +	(FACW+)
-3 Facultative Wetland	(FACW)
-2 Facultative Wetland -	(FACW-)
-1 Facultative +	(FAC+)
0 Facultative	(FAC)
1 Facultative -	(FAC-)
2 Facultative Upland +	(FACU+)
3 Facultative Upland	(FACU)
4 Facultative Upland -	(FACU-)
5 Upland	(UPL)

Table 4. Floristic data and cumulative list of vascular plant species (wetlands group & further studies group, combined) occurring in wet shrubland habitat (Wetland Site # 237) where ***Tomanthera auriculata*** was found occurring in the Illinois Department of Natural Resources Des Plaines State Conservation Area in Wilmington, within the IDOT 2012 Illiana Study Area, Will County, IL. Abbreviations are as follows: **Physiog.** = physiognomy (combination of structural attributes, life history and taxonomic classification); single letter prefixes accompanying Forb, Grass, Sedge, or Vine classifications are: **A** = annual, **B** = bienniel, **H** = herbaceous, **P** = perennial, and **W** = woody. Scientific names in all capital letters indicate taxa adventive to the region. Species in bold type are community dominants or subdominants, or dominants/subdominants within the immediate vicinity of where ***Tomanthera auriculata*** occurred. **Associate species** of ***Tomanthera auriculata*** are indicated with a **(T)** following their scientific name. The Floristic Quality Index (FQI), coefficients of conservatism, and wetland indicator status of each speceis are provided in the INHS Wetlands Report.

FLORISTIC DATA	Native	64	88.9%	Adventive	8	11.1%
64 NATIVE SPECIES	Tree	8	11.1%	Tree	0	0.0%
72 Total Species	Shrub	2	2.8%	Shrub	1	1.4%
	W-Vine	2	2.8%	W-Vine	1	1.4%
	H-Vine	0	0.0%	H-Vine	0	0.0%
	P-Forb	24	33.3%	P-Forb	0	0.0%
	B-Forb	3	4.2%	B-Forb	2	2.8%
	A-Forb	13	18.1%	A-Forb	1	1.4%
	P-Grass	3	4.2%	P-Grass	3	4.2%
	A-Grass	0	0.0%	A-Grass	0	0.0%
	P-Sedge	8	11.1%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Fern	1	1.4%			

SCIENTIFIC NAME	Physiog.	COMMON NAME
Acalypha rhomboidea	A-Forb	THREE-SEEDED MERCURY
Acer negundo	Tree	BOXELDER
Acer saccharinum	Tree	SILVER MAPLE
Agalinis tenuifolia **(T)**	A-Forb	SLENDER FALSE FOXGLOVE
Agrimonia parviflora **(T)**	P-Forb	SWAMP AGRIMONY
Ambrosia artemisiifolia	A-Forb	COMMON RAGWEED
Ambrosia trifida	A-Forb	GIANT RAGWEED
Apocynum cannabinum	P-Forb	DOGBANE
Asclepias syriaca	P-Forb	COMMON MILKWEED
Aster novae-angliae **(T)**	P-Forb	NEW ENGLAND ASTER
Aster simplex **(T)**	P-Forb	PANICLED ASTER
Bidens aristosa v. retrorsa **(T)**	A-Forb	BUR MARIGOLD
Bidens frondosa	A-Forb	COMMON BEGGAR'S TICKS
Boehmeria cylindrica	P-Forb	FALSE NETTLE
BROMUS INERMIS	P-Grass	HUNGARIAN BROME
Calystegia sepium **(T)**	P-Forb	AMERICAN BINDWEED
Carex cristatella **(T)**	P-Sedge	CRESTED OVAL SEDGE
Carex frankii	P-Sedge	BRISTLY CATTAIL SEDGE
Carex granularis	P-Sedge	PALE SEDGE
Carex trichocarpa	P-Sedge	HAIRY-FRUITED LAKE SEDGE
Carex vulpinoidea	P-Sedge	BROWN FOX SEDGE
Celtis occidentalis	Tree	HACKBERRY
Cirsium discolor **(T)**	B-Forb	PASTURE THISTLE
Conyza canadensis	A-Forb	HORSEWEED
Cornus obliqua **(T)**	Shrub	PALE DOGWOOD
Cyperus strigosus	P-Sedge	LONG-SCALED NUT SEDGE
DIPSACUS LACINIATUS **(T)**	B-Forb	CUT-LEAVED TEASEL
DIPSACUS SYLVESTRIS	B-Forb	COMMON TEASEL
Elymus virginicus	P-Grass	VIRGINIA WILD RYE
Equisetum arvense	Fern	COMMON HORSETAIL
Erechtites hieracifolia	A-Forb	FIREWEED
Erigeron annuus	B-Forb	ANNUAL FLEABANE
Eupatorium serotinum **(T)**	P-Forb	LATE BONESET
Euthamia graminifolia **(T)**	P-Forb	GRASS-LEAVED GOLDENROD
Galium triflorum **(T)**	P-Forb	SWEET-SCENTED BEDSTRAW

Table 4 continued

SCIENTIFIC NAME	Physiog.	COMMON NAME
Geum laciniatum **(T)**	P-Forb	ROUGH AVENS
Gleditsia triacanthos	Tree	HONEY LOCUST
Helianthus grosseserratus (T)	**P-Forb**	**SAWTOOTH SUNFLOWER**
Juncus dudleyi **(T)**	P-Forb	DUDLEY'S RUSH
Lactuca canadensis **(T)**	B-Forb	WILD LETTUCE
Lycopus americanus **(T)**	P-Forb	COMMON WATER HOREHOUND
Muhlenbergia frondosa	P-Grass	COMMON SATIN GRASS
Penthorum sedoides	P-Forb	DITCH STONECROP
PHALARIS ARUNDINACEA	**P-Grass**	**REED CANARY GRASS**
Phragmites australis	P-Grass	COMMON REED
Phyla lanceolata **(T)**	P-Forb	FOG FRUIT
POA PRATENSIS **(T)**	P-Grass	KENTUCKY BLUE GRASS
Polygonum pensylvanicum	A-Forb	PINKWEED
POLYGONUM PERSICARIA	A-Forb	LADY'S THUMB
Polygonum punctatum	A-Forb	SMARTWEED
Populus deltoides	**Tree**	**EASTERN COTTONWOOD**
Prunella vulgaris v. elongata **(T)**	P-Forb	SELF-HEAL
Ranunculus abortivus	A-Forb	LITTLE-LEAF BUTTERCUP
ROSA MULTIFLORA **(T)**	Shrub	JAPANESE ROSE
Salix amygdaloides	Tree	PEACH-LEAVED WILLOW
Salix exigua (T)	**Shrub**	**SANDBAR WILLOW**
Salix nigra	Tree	BLACK WILLOW
Scirpus cyperinus **(T)**	P-Sedge	WOOL GRASS
Scirpus fluviatilis	P-Sedge	RIVER BULRUSH
Solanum carolinense	P-Forb	HORSE NETTLE
SOLANUM DULCAMARA	W-Vine	BITTERSWEET NIGHTSHADE
Solidago canadensis (T)	**P-Forb**	**CANADA GOLDENROD**
Solidago gigantea (T)	**P-Forb**	**LATE GOLDENROD**
***Tomanthera auriculata (State Threatened)**	A-Forb	EARED FALSE FOXGLOVE (14 individuals observed)
Toxicodendron radicans **(T)**	W-Vine	POISON IVY
Typha latifolia	P-Forb	BROAD-LEAVED CATTAIL
Ulmus americana **(T)** (seedlings/small saplings)	Tree	AMERICAN ELM
Verbena hastata	P-Forb	BLUE VERVAIN
Verbena urticifolia	P-Forb	WHITE VERVIAN
Viola sororia	P-Forb	WOOLLY BLUE VIOLET
Vitis riparia **(T)**	W-Vine	RIVERBANK GRAPE
Xanthium strumarium	A-Forb	COCKLEBUR

Table 5. Floristic quality assessment and cumulative list of vascular plant species occurring in **Regionally Noteworthy Botanical Resource Area #2** (grade C+ to B- remnant dry-mesic prairie/mesic prairie - Prairie Site #3 [0.37 acres]) occurring along the Canadian National railroad in Peotone, IL, within the IDOT 2012 Illiana Study Area, Will County, Illinois. Abbreviations are as follows: **FQI** = floristic quality index; **C** = coefficient of conservatism; **W** = numeric wetness values for wetland categories (see end of table); **Wetness** = wetland classification category (see end of table); **Physiog.** = physiognomy (combination of structural attributes, life history and taxonomic classification); and **Rel. Abun.** = Relative abundance: **1** = rare, **2** = occasional, **3** = common, **4** = abundant, **5** = very abundant (community dominant). Single letter prefixes accompanying Forb, Grass, Sedge, or Vine classifications are: **A** = annual, **B** = bienniel, **H** = herbaceous, **P** = perennial, and **W** = woody. Scientific names in all capital letters indicate taxa adventive to the region. Species in bold type are community dominants or subdominants.

FLORISTIC QUALITY DATA	Native	91	86.7%	Adventive	14	13.3%
91 NATIVE SPECIES	Tree	2	1.9%	Tree	0	0.0%
105 Total Species	Shrub	5	4.8%	Shrub	4	3.8%
4.0 NATIVE MEAN C	W-Vine	2	1.9%	W-Vine	0	0.0%
3.5 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
38.1 NATIVE FQI	P-Forb	60	57.1%	P-Forb	1	1.0%
35.4 W/Adventives	B-Forb	3	2.9%	B-Forb	4	3.8%
1.0 NATIVE MEAN W	A-Forb	2	1.9%	A-Forb	1	1.0%
1.3 W/Adventives	P-Grass	10	9.5%	P-Grass	4	3.8%
AVG: Faculative (-)	A-Grass	1	1.0%	A-Grass	0	0.0%
	P-Sedge	5	4.8%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Fern	1	1.0%			

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
5	Agalinis tenuifolia	-3	FACW	A-Forb	SLENDER FALSE FOXGLOVE	2-3
0	Agrostis alba	-3	FACW	P-Grass	RED TOP	2-3
2	Allium canadense	3	FACU	P-Forb	WILD GARLIC	2-3
8	Amorpha canescens	5	UPL	Shrub	LEAD PLANT	4
5	**Andropogon gerardii**	**1**	**FAC-**	**P-Grass**	**BIG BLUESTEM**	**4-5**
8	Anemone cylindrica	5	UPL	P-Forb	CANDLE ANEMONE	3-4
2	Apocynum sibiricum	-1	FAC+	P-Forb	INDIAN HEMP	2
0	Aristida oligantha	5	UPL	A-Grass	PLAINS THREE AWN GRASS	2
7	Asclepias sullivantii	5	UPL	P-Forb	PRAIRIE MILKWEED	2
0	Asclepias syriaca	5	UPL	P-Forb	COMMON MILKWEED	2
5	Asclepias tuberosa v. interior	5	UPL	P-Forb	BUTTERFLYWEED	2
9	Asclepias viridiflora	5	UPL	P-Forb	GREEN MILKWEED	2-3
4	Aster ericoides	4	FACU-	P-Forb	HEATH ASTER	4
4	Aster novae-angliae	-3	FACW	P-Forb	NEW ENGLAND ASTER	2-3
0	Aster pilosus	4	FACU-	P-Forb	HAIRY ASTER	2-3
4	Aster praealtus	-5	OBL	P-Forb	WILLOW ASTER	2-3
0	BROMUS INERMIS	5	UPL	P-Grass	HUNGARIAN BROME	2-3
1	Calystegia sepium	0	FAC	P-Forb	AMERICAN BINDWEED	2
4	Carex gravida	5	UPL	P-Sedge	LONG-AWNED BRACTED SEDGE	2-3
2	Carex molesta	0	FAC	P-Sedge	FIELD OVAL SEDGE	2-3
3	Carex vulpinoidea	-5	OBL	P-Sedge	BROWN FOX SEDGE	2-3
1	Cassia fasciculata	4	FACU-	A-Forb	GOLDEN CASSIA	3
4	Cicuta maculata	-5	OBL	B-Forb	WATER HEMLOCK	2
3	Cirsium discolor	5	UPL	B-Forb	PASTURE THISTLE	3
6	Comandra umbellata	3	FACU	P-Forb	FALSE TOAD-FLAX	2-3
6	Coreopsis palmata	5	UPL	P-Forb	PRAIRIE COREOPSIS	4
8	Dalea purpurea	5	UPL	P-Forb	PURPLE PRAIRIE CLOVER	4
0	DAUCUS CAROTA	4	FACU-	B-Forb	QUEEN ANNE'S LACE	2
5	Desmodium canadense	1	FAC-	P-Forb	SHOWY TICK TREFOIL	3
0	DIPSACUS LACINIATUS	5	UPL	B-Forb	CUT-LEAVED TEASEL	2
4	Elymus canadensis	1	FAC-	P-Grass	CANADA WILD RYE	3
4	Elymus virginicus	-2	FACW-	P-Grass	VIRGINIA WILD RYE	2

Table 5 continued

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
4	Equisetum laevigatum	-3	FACW	Fern	SMOOTH SCOURING RUSH	3
2	Erigeron strigosus	1	FAC-	P-Forb	DAISY FLEABANE	3
7	Eryngium yuccifolium	-1	FAC+	P-Forb	RATTLESNAKE MASTER	3
2	Eupatorium altissimum	3	FACU	P-Forb	TALL BONESET	2
3	Euphorbia corollata	5	UPL	P-Forb	FLOWERING SPURGE	4
3	Euthamia graminifolia	-2	FACW-	P-Forb	GRASS-LEAVED GOLDENROD	4
0	FESTUCA ARUNDINACEA	2	FACU+	P-Grass	TALL FESCUE	2
2	Fragaria virginiana	1	FAC-	P-Forb	WILD STRAWBERRY	3
5	Galium obtusum	-4	FACW+	P-Forb	WILD MADDER	2-3
2	Geum laciniatum	-3	FACW	P-Forb	ROUGH AVENS	2
2	Helianthus grosseserratus	-2	FACW-	P-Forb	SAWTOOTH SUNFLOWER	2
6	Helianthus rigidus	5	UPL	P-Forb	PRAIRIE SUNFLOWER	4
4	Juncus dudleyi	0	FAC	P-Forb	DUDLEY'S RUSH	3
1	Lactuca canadensis	2	FACU+	B-Forb	WILD LETTUCE	2
4	Lespedeza capitata	3	FACU	P-Forb	ROUND-HEADED BUSH CLOVER	3
0	LEUCANTHEMUM VULGARE	5	UPL	P-Forb	OX-EYE DAISY	2-3
7	Liatris aspera	5	UPL	P-Forb	ROUGH BLAZING STAR	3
6	Liatris pycnostachya	1	FAC-	P-Forb	PRAIRIE BLAZINE STAR	2
6	Lilium michiganense	-1	FAC+	P-Forb	MICHIGAN LILY	1-2
6	Lithospermum canescens	5	UPL	P-Forb	HOARY PUCCOON	2-3
4	Lobelia spicata	0	FAC	P-Forb	PALE SPIKED LOBELIA	2-3
0	LONICERA MAACKII	5	UPL	Shrub	AMUR HONEYSUCKLE	2
0	LONICERA X BELLA	3	FACU	Shrub	SHOWY FLY HONEYSUCKLE	2
3	Lycopus americanus	-5	OBL	P-Forb	COMMON WATER HOREHOUND	2
5	Lythrum alatum	-5	OBL	P-Forb	WINGED LOOSESTRIFE	2
0	MEDICAGO LUPULINA	1	FAC-	A-Forb	BLACK MEDICK	2
0	MELILOTUS ALBA	3	FACU	B-Forb	WHITE SWEET CLOVER	2
4	Monarda fistulosa	3	FACU	P-Forb	WILD BERGAMOT	2-3
6	Oenothera pilosella	1	FAC-	P-Forb	PRAIRIE SUNDROPS	2-3
2	Panicum implicatum	0	FAC	P-Grass	OLD FIELD PANIC GRASS	3
3	Panicum oligosanthes v. scribnerianum	3	FACU	P-Grass	SCRIBNER'S PANIC GRASS	3
4	Panicum virgatum	-1	FAC+	P-Grass	PRAIRIE SWITCH GRASS	3-4
8	Parthenium integrifolium	5	UPL	P-Forb	WILD QUININE	4
0	PASTINACA SATIVA	5	UPL	B-Forb	WILD PARSNIP	2-3
6	Phlox glaberrima sp. interior	-3	FACW	P-Forb	SMOOTH PHLOX	2
7	Phlox pilosa	1	FAC-	P-Forb	SAND PRAIRIE PHLOX	2
6	Physostegia virginiana	-3	FACW	P-Forb	OBEDIENT PLANT	2
0	POA COMPRESSA	2	FACU+	P-Grass	CANADIAN BLUE GRASS	2
0	POA PRATENSIS	1	FAC-	P-Grass	KENTUCKY BLUE GRASS	2
2	Populus deltoides	-1	FAC+	Tree	EASTERN COTTONWOOD	1
3	Potentilla simplex	4	FACU-	P-Forb	COMMON CINQUEFOIL	3
1	Prunella vulgaris v. elongata	0	FAC	P-Forb	SELF-HEAL	3
1	Prunus serotina	3	FACU	Tree	WILD BLACK CHERRY	2-3
4	Ptelea trifoliata	2	FACU+	Shrub	WAFER ASH	2
5	Pycnanthemum virginianum	-4	FACW+	P-Forb	COMMON MOUNTAIN MINT	3-4
4	Ratibida pinnata	5	UPL	P-Forb	YELLOW CONEFLOWER	4
0	RHAMNUS CATHARTICA	3	FACU	Shrub	COMMON BUCKTHORN	2
4	Rosa carolina	4	FACU-	Shrub	PASTURE ROSE	3
0	ROSA MULTIFLORA	3	FACU	Shrub	JAPANESE ROSE	1-2
5	Rosa setigera	2	FACU+	Shrub	ILLINOIS ROSE	2
2	Rubus occidentalis	3	FACU	Shrub	BLACK RASPBERRY	2
2	Rudbeckia hirta	3	FACU	P-Forb	BLACK-EYED SUSAN	3
5	**Schizachyrium scoparium**	**4**	**FACU-**	**P-Grass**	**LITTLE BLUESTEM**	**4-5**

Table 5 continued

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
4	Scirpus atrovirens	-5	OBL	P-Sedge	DARK GREEN RUSH	2
3	Scirpus pendulus	-5	OBL	P-Sedge	RED BULRUSH	2
5	Silphium integrifolium	5	UPL	P-Forb	ROSIN WEED	3
5	Silphium laciniatum	4	FACU-	P-Forb	COMPASS PLANT	4
4	Silphium terebinthinaceum	1	FAC-	P-Forb	PRAIRIE DOCK	4
4	Sisyrinchium albidum	3	FACU	P-Forb	COMMON BLUE-EYED GRASS	2
5	Smilacina stellata	1	FAC-	P-Forb	STARRY FALSE SOLOMON SEAL	2
1	Solidago canadensis	3	FACU	P-Forb	CANADA GOLDENROD	2
3	Solidago gigantea	-3	FACW	P-Forb	LATE GOLDENROD	2-3
4	Solidago juncea	5	UPL	P-Forb	EARLY GOLDENROD	3
3	Solidago nemoralis	5	UPL	P-Forb	OLD FIELD GOLDENROD	3-4
7	Solidago riddellii	-5	OBL	P-Forb	RIDDELL'S GOLDENROD	3
4	**Solidago rigida**	**4**	**FACU-**	**P-Forb**	**RIGID GOLDENROD**	**4-5**
4	Sorghastrum nutans	2	FACU+	P-Grass	INDIAN GRASS	3-4
4	Spartina pectinata	-4	FACW+	P-Grass	PRAIRIE CORD GRASS	2
3	Tradescantia ohiensis	2	FACU+	P-Forb	COMMON SPIDERWORT	3
6	Veronicastrum virginicum	0	FAC	P-Forb	CULVER'S ROOT	2-3
2	Vitis riparia	-2	FACW-	W-Vine	RIVERBANK GRAPE	2-3
4	Vitis vulpina	-2	FACW-	W-Vine	FROST GRAPE	2
6	Zizia aurea	-1	FAC+	P-Forb	GOLDEN ALEXANDERS	4

Wetland classification categories follow Reed (1988) for Region 3. Further details are from Taft et al. (1997). Plants are placed within one of five wetland indicator categories: Obligate Wetland (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU), and Upland (UPL). Within any of these five categories, a "+" indicates that a particular taxon has a greater tendency to occur in wetlands while a "-" indicates a lesser tendency. Following this, indicator status categories, in descending order of probability of occurrence in wetland habitat, would be:

-5 Obligate Wetland	(OBL)
-4 Facultative Wetland +	(FACW+)
-3 Facultative Wetland	(FACW)
-2 Facultative Wetland -	(FACW-)
-1 Facultative +	(FAC+)
0 Facultative	(FAC)
1 Facultative -	(FAC-)
2 Facultative Upland +	(FACU+)
3 Facultative Upland	(FACU)
4 Facultative Upland -	(FACU-)
5 Upland	(UPL)

Table 6. Floristic quality assessment and cumulative list of vascular plant species occurring in **Exceptional Botanical Resource Area #1** (grade B to B+ remnant dry-mesic prairie/mesic prairie - Prairie Site #1 [0.20 acres]) occurring along the CN railroad in Peotone, IL, within the IDOT 2012 Illiana Study Area, Will County, Illinois. Abbreviations are as follows: **FQI** = floristic quality index; **C** = coefficient of conservatism; **W** = numeric wetness values for wetland categories (see end of table); **Wetness** = wetland classification category (see end of table); **Physiog.** = physiognomy (combination of structural attributes, life history and taxonomic classification); and **Rel. Abun.** = Relative abundance: **1** = rare, **2** = occasional, **3** = common, **4** = abundant, **5** = very abundant (community dominant). Single letter prefixes accompanying Forb, Grass, Sedge, or Vine classifications are: **A** = annual, **B** = bienniel, **H** = herbaceous, **P** = perennial, and **W** = woody. Scientific names in all capital letters indicate taxa adventive to the region. Species in bold type are community dominants or subdominants.

FLORISTIC QUALITY DATA	Native	90	91.8%	Adventive	8	8.2%
90 NATIVE SPECIES	Tree	6	6.1%	Tree	0	0.0%
98 Total Species	Shrub	4	4.1%	Shrub	3	3.1%
4.5 NATIVE MEAN C	W-Vine	0	0.0%	W-Vine	0	0.0%
4.1 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
42.6 NATIVE FQI	P-Forb	57	58.2%	P-Forb	2	2.0%
40.8 W/Adventives	B-Forb	4	4.1%	B-Forb	2	2.0%
1.6 NATIVE MEAN W	A-Forb	3	3.1%	A-Forb	0	0.0%
1.7 W/Adventives	P-Grass	9	9.2%	P-Grass	1	1.0%
AVG: Fac. Upland (+)	A-Grass	0	0.0%	A-Grass	0	0.0%
	P-Sedge	5	5.1%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Fern	2	2.0%			

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
2	Allium canadense	3	FACU	P-Forb	WILD GARLIC	2
0	Ambrosia trifida	-1	FAC+	A-Forb	GIANT RAGWEED	2
8	**Amorpha canescens**	**5**	**UPL**	**Shrub**	**LEAD PLANT**	**4**
5	Andropogon gerardii	1	FAC-	P-Grass	BIG BLUESTEM	3
8	Anemone cylindrica	5	UPL	P-Forb	CANDLE ANEMONE	2-3
4	Anemone virginiana	5	UPL	P-Forb	TALL ANEMONE	2
7	Asclepias sullivantii	5	UPL	P-Forb	PRAIRIE MILKWEED	2
9	Asclepias viridiflora	5	UPL	P-Forb	GREEN MILKWEED	2
0	ASPARAGUS OFFICINALIS	3	FACU	P-Forb	GARDEN ASPARAGUS	1-2
7	Aster azureus	5	UPL	P-Forb	SKY-BLUE ASTER	1-2
3	Aster drummondii	3	FACU	P-Forb	DRUMMOND'S ASTER	1-2
4	Aster ericoides	4	FACU-	P-Forb	HEATH ASTER	3
4	Aster novae-angliae	-3	FACW	P-Forb	NEW ENGLAND ASTER	2
0	Aster pilosus	4	FACU-	P-Forb	HAIRY ASTER	2-3
4	Aster praealtus	-5	OBL	P-Forb	WILLOW ASTER	2
6	Baptisia lactea	3	FACU	P-Forb	WHITE WILD INDIGO	1
9	Baptisia leucophaea	5	UPL	P-Forb	CREAM WILD INDIGO	1
1	Calystegia sepium	0	FAC	P-Forb	AMERICAN BINDWEED	2
8	Carex bicknellii	1	FAC-	P-Sedge	BICKNELL'S SEDGE	2
4	Carex lanuginosa	-5	OBL	P-Sedge	WOOLY SEDGE	2
2	Carex molesta	0	FAC	P-Sedge	FIELD OVAL SEDGE	2
1	Cassia fasciculata	4	FACU-	A-Forb	GOLDEN CASSIA	2-3
4	Cicuta maculata	-5	OBL	B-Forb	WATER HEMLOCK	1-2
3	Cirsium discolor	5	UPL	B-Forb	PASTURE THISTLE	2
1	Claytonia virginica	3	FACU	P-Forb	SPRING BEAUTY	2
6	Comandra umbellata	3	FACU	P-Forb	BASTARD TOAD-FLAX	2-3
6	Coreopsis palmata	5	UPL	P-Forb	PRAIRIE COREOPSIS	3-4
2	Crataegus crus-galli	0	FAC	Tree	COCK-SPUR HAWTHORN	1-2
2	Crataegus mollis	-2	FACW-	Tree	DOWNY HAWTHORN	1-2
9	Dalea candida	5	UPL	P-Forb	WHITE PRAIRIE CLOVER	1
8	Dalea purpurea	5	UPL	P-Forb	PURPLE PRAIRIE CLOVER	3-4
0	DAUCUS CAROTA	4	FACU-	B-Forb	QUEEN ANNE'S LACE	1-2
5	Desmodium canadense	1	FAC-	P-Forb	SHOWY TICK TREFOIL	2-3

Table 6 continued

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
6	Dodecatheon meadia	3	FACU	P-Forb	SHOOTING STAR	1
4	Elymus canadensis	1	FAC-	P-Grass	CANADA WILD RYE	1-2
0	Equisetum arvense	0	FAC	Fern	COMMON HORSETAIL	2
4	Equisetum laevigatum	-3	FACW	Fern	SMOOTH SCOURING RUSH	2-3
7	Eryngium yuccifolium	-1	FAC+	P-Forb	RATTLESNAKE MASTER	3-4
2	Eupatorium altissimum	3	FACU	P-Forb	TALL BONESET	1-2
3	Euphorbia corollata	5	UPL	P-Forb	FLOWERING SPURGE	2
3	Euthamia graminifolia	-2	FACW-	P-Forb	GRASS-LEAVED GOLDENROD	3
2	Fragaria virginiana	1	FAC-	P-Forb	WILD STRAWBERRY	3
2	Fraxinus pennsylvanica v. subintegerrima	-3	FACW	Tree	GREEN ASH	1-2
7	Gentiana andrewsii	-3	FACW	P-Forb	CLOSED GENTIAN	1-2
7	Gentianella quinquefolia v. occidentalis	0	FAC	A-Forb	STIFF GENTIAN	1-2
2	Geum laciniatum	-3	FACW	P-Forb	ROUGH AVENS	2
2	Helianthus grosseserratus	-2	FACW-	P-Forb	SAWTOOTH SUNFLOWER	1-2
6	Helianthus rigidus	5	UPL	P-Forb	PRAIRIE SUNFLOWER	2-3
4	Juncus dudleyi	0	FAC	P-Forb	DUDLEY'S RUSH	3
4	Lespedeza capitata	3	FACU	P-Forb	ROUND-HEADED BUSH CLOVER	2
0	LEUCANTHEMUM VULGARE	5	UPL	P-Forb	OX-EYE DAISY	2-3
7	Liatris aspera	5	UPL	P-Forb	ROUGH BLAZING STAR	3
6	Liatris pycnostachya	1	FAC-	P-Forb	PRAIRIE BLAZINE STAR	2
6	Lithospermum canescens	5	UPL	P-Forb	HOARY PUCCOON	3
0	LONICERA MAACKII	5	UPL	Shrub	AMUR HONEYSUCKLE	2
0	LONICERA X BELLA	3	FACU	Shrub	SHOWY FLY HONEYSUCKLE	2
4	Monarda fistulosa	3	FACU	P-Forb	WILD BERGAMOT	2-3
1	Oenothera biennis	3	FACU	B-Forb	COMMON EVENING PRIMROSE	1
6	Oenothera pilosella	1	FAC-	P-Forb	PRAIRIE SUNDROPS	2
3	Panicum oligosanthes v. scribnerianum	3	FACU	P-Grass	SCRIBNER'S PANIC GRASS	2
4	Panicum virgatum	-1	FAC+	P-Grass	PRAIRIE SWITCH GRASS	2-3
8	Parthenium integrifolium	5	UPL	P-Forb	WILD QUININE	2
0	PASTINACA SATIVA	5	UPL	B-Forb	WILD PARSNIP	1-2
0	PHALARIS ARUNDINACEA	-4	FACW+	P-Grass	REED CANARY GRASS	1-2
7	Phlox pilosa	1	FAC-	P-Forb	SAND PRAIRIE PHLOX	3
6	Physostegia virginiana	-3	FACW	P-Forb	OBEDIENT PLANT	2
2	Populus deltoides	-1	FAC+	Tree	EASTERN COTTONWOOD	1
3	Potentilla simplex	4	FACU-	P-Forb	COMMON CINQUEFOIL	2
8	Prenanthes aspera	5	UPL	P-Forb	ROUGH WHITE LETTUCE	1
1	Prunus serotina	3	FACU	Tree	WILD BLACK CHERRY	1-2
8	Psoralea tenuiflora	5	UPL	P-Forb	SCURFY-PEA	2
4	Ptelea trifoliata	2	FACU+	Shrub	WAFER ASH	2
5	Pycnanthemum virginianum	-4	FACW+	P-Forb	COMMON MOUNTAIN MINT	3
4	Ratibida pinnata	5	UPL	P-Forb	YELLOW CONEFLOWER	2
0	RHAMNUS CATHARTICA	3	FACU	Shrub	COMMON BUCKTHORN	1-2
4	Rosa carolina	4	FACU-	Shrub	PASTURE ROSE	2-3
5	Rosa setigera	2	FACU+	Shrub	ILLINOIS ROSE	1-2
2	Rudbeckia hirta	3	FACU	P-Forb	BLACK-EYED SUSAN	2
4	Sanicula canadensis	2	FACU+	B-Forb	CANADIAN BLACK SNAKEROOT	1
5	**Schizachyrium scoparium**	**4**	**FACU-**	**P-Grass**	**LITTLE BLUESTEM**	**4**
4	Scirpus atrovirens	-5	OBL	P-Sedge	DARK GREEN RUSH	2
3	Scirpus pendulus	-5	OBL	P-Sedge	RED BULRUSH	1-2
5	Silphium integrifolium	5	UPL	P-Forb	ROSIN WEED	2-3
5	**Silphium laciniatum**	**4**	**FACU-**	**P-Forb**	**COMPASS PLANT**	**4**
4	**Silphium terebinthinaceum**	**1**	**FAC-**	**P-Forb**	**PRAIRIE DOCK**	**4-5**
4	Sisyrinchium albidum	3	FACU	P-Forb	COMMON BLUE-EYED GRASS	2-3

Table 6 continued

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
1	Solidago canadensis	3	FACU	P-Forb	CANADA GOLDENROD	3-4
3	Solidago gigantea	-3	FACW	P-Forb	LATE GOLDENROD	2
4	**Solidago rigida**	**4**	**FACU-**	**P-Forb**	**RIGID GOLDENROD**	**4**
7	Solidago speciosa	5	UPL	P-Forb	SHOWY GOLDENROD	2-3
4	Sorghastrum nutans	2	FACU+	P-Grass	INDIAN GRASS	2
5	Sphenopholis obtusata	0	FAC	P-Grass	PRAIRIE WEDGE GRASS	2
9	**Sporobolus heterolepis**	**4**	**FACU-**	**P-Grass**	**PRAIRIE DROP SEED**	**4**
6	Stipa spartea	5	UPL	P-Grass	PORCUPINE GRASS	2-3
3	Tradescantia ohiensis	2	FACU+	P-Forb	COMMON SPIDERWORT	3-4
5	Ulmus americana	-2	FACW-	Tree	AMERICAN ELM	2
6	Veronicastrum virginicum	0	FAC	P-Forb	CULVER'S ROOT	2
6	Zizia aurea	-1	FAC+	P-Forb	GOLDEN ALEXANDERS	2-3

Wetland classification categories follow Reed (1988) for Region 3. Further details are from Taft et al. (1997). Plants are placed within one of five wetland indicator categories: Obligate Wetland (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU), and Upland (UPL). Within any of these five categories, a "+" indicates that a particular taxon has a greater tendency to occur in wetlands while a "-" indicates a lesser tendency. Following this, indicator status categories, in descending order of probability of occurrence in wetland habitat, would be:

-5 Obligate Wetland	(OBL)
-4 Facultative Wetland +	(FACW+)
-3 Facultative Wetland	(FACW)
-2 Facultative Wetland -	(FACW-)
-1 Facultative +	(FAC+)
0 Facultative	(FAC)
1 Facultative -	(FAC-)
2 Facultative Upland +	(FACU+)
3 Facultative Upland	(FACU)
4 Facultative Upland -	(FACU-)
5 Upland	(UPL)

Table 7. Floristic quality assessment and cumulative list of vascular plant species occurring in grade C remnant dry-mesic prairie/mesic prairie (**Prairie Sites 4, 5, 6, 7, 8, & 19** [1.27 acres]) occurring along the CN railroad and IL Route 50, in Peotone, IL, within the IDOT 2012 Illiana Study Area, Will County, Illinois. Abbreviations are as follows: **FQI** = floristic quality index; **C** = coefficient of conservatism; **W** = numeric wetness values for wetland categories (see end of table); **Wetness** = wetland classification category (see end of table); **Physiog.** = physiognomy (combination of structural attributes, life history and taxonomic classification); and **Rel. Abun.** = Relative abundance: **1** = rare, **2** = occasional, **3** = common, **4** = abundant, **5** = very abundant (community dominant). Single letter prefixes accompanying Forb, Grass, Sedge, or Vine classifications are: **A** = annual, **B** = bienniel, **H** = herbaceous, **P** = perennial, and **W** = woody. Scientific names in all capital letters indicate taxa adventive to the region. Species in bold type are community dominants or subdominants.

FLORISTIC QUALITY DATA	Native	103	82.4%	Adventive	22	17.6%
103 NATIVE SPECIES	Tree	4	3.2%	Tree	1	0.8%
125 Total Species	Shrub	7	5.6%	Shrub	3	2.4%
3.7 NATIVE MEAN C	W-Vine	1	0.8%	W-Vine	0	0.0%
3.1 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
37.6 NATIVE FQI	P-Forb	65	52.0%	P-Forb	6	4.8%
34.2 W/Adventives	B-Forb	3	2.4%	B-Forb	5	4.0%
1.1 NATIVE MEAN W	A-Forb	3	2.4%	A-Forb	2	1.6%
1.5 W/Adventives	P-Grass	13	10.4%	P-Grass	5	4.0%
AVG: Faculative (-)	A-Grass	0	0.0%	A-Grass	0	0.0%
	P-Sedge	6	4.8%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Fern	1	0.8%			

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
0	ACHILLEA MILLEFOLIUM	3	FACU	P-Forb	COMMON MILFOIL	2-3
0	Agrostis alba	-3	FACW	P-Grass	RED TOP	2-3
0	Ambrosia artemisiifolia	3	FACU	A-Forb	COMMON RAGWEED	3
0	Ambrosia trifida	-1	FAC+	A-Forb	GIANT RAGWEED	3
8	Amorpha canescens	5	UPL	Shrub	LEAD PLANT	1-2
5	**Andropogon gerardii**	**1**	**FAC-**	**P-Grass**	**BIG BLUESTEM**	**3-4**
8	Anemone cylindrica	5	UPL	P-Forb	CANDLE ANEMONE	2
2	Apocynum cannabinum	0	FAC	P-Forb	DOGBANE	3
2	Apocynum sibiricum	-1	FAC+	P-Forb	INDIAN HEMP	3
7	Asclepias sullivantii	5	UPL	P-Forb	PRAIRIE MILKWEED	2
0	Asclepias syriaca	5	UPL	P-Forb	COMMON MILKWEED	3
5	Asclepias tuberosa v. interior	5	UPL	P-Forb	BUTTERFLYWEED	1-2
1	Asclepias verticillata	5	UPL	P-Forb	HORSETAIL MILKWEED	3-4
0	ASPARAGUS OFFICINALIS	3	FACU	P-Forb	GARDEN ASPARAGUS	2
4	Aster ericoides	4	FACU-	P-Forb	HEATH ASTER	3-4
4	Aster novae-angliae	-3	FACW	P-Forb	NEW ENGLAND ASTER	2-3
0	Aster pilosus	4	FACU-	P-Forb	HAIRY ASTER	3-4
4	Aster praealtus	-5	OBL	P-Forb	WILLOW ASTER	2
1	Bidens aristosa	-3	FACW	A-Forb	SWAMP MARIGOLD	1-2
0	BROMUS INERMIS	5	UPL	P-Grass	HUNGARIAN BROME	3
1	Calystegia sepium	0	FAC	P-Forb	AMERICAN BINDWEED	3
4	Carex gravida	5	UPL	P-Sedge	LONG-AWNED BRACTED SEDGE	2
4	Carex lanuginosa	-5	OBL	P-Sedge	WOOLY SEDGE	3
2	Carex molesta	0	FAC	P-Sedge	FIELD OVAL SEDGE	2
5	Carex stricta	-5	OBL	P-Sedge	COMMON TUSSOCK SEDGE	2
3	Carex vulpinoidea	-5	OBL	P-Sedge	BROWN FOX SEDGE	2
0	CENTAUREA MACULOSA	5	UPL	B-Forb	SPOTTED CENTAUREA	2
0	CICHORIUM INTYBUS	5	UPL	P-Forb	CHICKORY	3-4
4	Cicuta maculata	-5	OBL	B-Forb	WATER HEMLOCK	1-2
3	Cirsium discolor	5	UPL	B-Forb	PASTURE THISTLE	3
6	Comandra umbellata	3	FACU	P-Forb	BASTARD TOAD-FLAX	2
6	Coreopsis palmata	5	UPL	P-Forb	PRAIRIE COREOPSIS	3

Table 7 continued

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
4	Coreopsis tripteris	0	FAC	P-Forb	TALL COREOPSIS	2
2	Cornus racemosa	-2	FACW-	Shrub	GRAY DOGWOOD	2-3
0	CORONILLA VARIA	5	UPL	P-Forb	CROWN VETCH	2
8	Dalea purpurea	5	UPL	P-Forb	PURPLE PRAIRIE CLOVER	2
0	DAUCUS CAROTA	4	FACU-	B-Forb	QUEEN ANNE'S LACE	3
4	Desmanthus illinoensis	1	FAC-	P-Forb	ILLINOIS BUNDLE FLOWER	1-2
5	Desmodium canadense	1	FAC-	P-Forb	SHOWY TICK TREFOIL	2
0	DIPSACUS LACINIATUS	5	UPL	B-Forb	CUT-LEAVED TEASEL	2-3
0	ECHINOPS SPHAEROCEPHALUS	5	UPL	P-Forb	GLOBE THISTLE	1-2
4	Elymus canadensis	1	FAC-	P-Grass	CANADA WILD RYE	2
4	Equisetum laevigatum	-3	FACW	Fern	SMOOTH SCOURING RUSH	2-3
3	Eragrostis spectabilis	5	UPL	P-Grass	PURPLE LOVE GRASS	2-3
2	Erigeron strigosus	1	FAC-	P-Forb	DAISY FLEABANE	3
7	Eryngium yuccifolium	-1	FAC+	P-Forb	RATTLESNAKE MASTER	2
2	Eupatorium altissimum	3	FACU	P-Forb	TALL BONESET	3
3	Euphorbia corollata	5	UPL	P-Forb	FLOWERING SPURGE	3
3	Euthamia graminifolia	-2	FACW-	P-Forb	GRASS-LEAVED GOLDENROD	3
0	FESTUCA ARUNDINACEA	2	FACU+	P-Grass	TALL FESCUE	3
2	Fragaria virginiana	1	FAC-	P-Forb	WILD STRAWBERRY	3
2	Geum laciniatum	-3	FACW	P-Forb	ROUGH AVENS	1-2
2	Helianthus grosseserratus	-2	FACW-	P-Forb	SAWTOOTH SUNFLOWER	3
6	**Helianthus rigidus**	**5**	**UPL**	**P-Forb**	**PRAIRIE SUNFLOWER**	**4**
0	HORDEUM JUBATUM	-1	FAC+	P-Grass	SQUIRREL-TAIL GRASS	2-3
4	Juncus dudleyi	0	FAC	P-Forb	DUDLEY'S RUSH	3
3	Juncus torreyi	-3	FACW	P-Forb	TORREY'S RUSH	2
1	Juniperus virginiana	3	FACU	Tree	EASTERN RED CEDAR	2
4	Lespedeza capitata	3	FACU	P-Forb	ROUND-HEADED BUSH CLOVER	2-3
0	LEUCANTHEMUM VULGARE	5	UPL	P-Forb	OX-EYE DAISY	3
7	Liatris aspera	5	UPL	P-Forb	ROUGH BLAZING STAR	3-4
6	Liatris pycnostachya	1	FAC-	P-Forb	PRAIRIE BLAZINE STAR	2
6	Lithospermum canescens	5	UPL	P-Forb	HOARY PUCCOON	3
4	Lobelia spicata	0	FAC	P-Forb	PALE SPIKED LOBELIA	2
0	LONICERA MAACKII	5	UPL	Shrub	AMUR HONEYSUCKLE	3
0	LONICERA X BELLA	3	FACU	Shrub	SHOWY FLY HONEYSUCKLE	3
3	Lycopus americanus	-5	OBL	P-Forb	COMMON WATER HOREHOUND	2
6	Lysimachia lanceolata	0	FAC	P-Forb	LANCE-LEAVED LOOSESTRIFE	2
5	Lythrum alatum	-5	OBL	P-Forb	WINGED LOOSESTRIFE	2
0	MEDICAGO LUPULINA	1	FAC-	A-Forb	BLACK MEDICK	3
0	MELILOTUS ALBA	3	FACU	B-Forb	WHITE SWEET CLOVER	3
4	Mentha arvensis v. villosa	-3	FACW	P-Forb	WILD MINT	3
4	Monarda fistulosa	3	FACU	P-Forb	WILD BERGAMOT	2-3
0	MORUS ALBA	0	FAC	Tree	WHITE MULBERRY	2
1	Oenothera biennis	3	FACU	B-Forb	COMMON EVENING PRIMROSE	2
6	Oenothera pilosella	1	FAC-	P-Forb	PRAIRIE SUNDROPS	2
0	Oxalis stricta	3	FACU	P-Forb	TALL WOOD SORREL	3
2	Panicum implicatum	0	FAC	P-Grass	OLD FIELD PANIC GRASS	3
3	Panicum oligosanthes v. scribnerianum	3	FACU	P-Grass	SCRIBNER'S PANIC GRASS	2
4	Panicum virgatum	-1	FAC+	P-Grass	PRAIRIE SWITCH GRASS	3
8	Parthenium integrifolium	5	UPL	P-Forb	WILD QUININE	2
0	PASTINACA SATIVA	5	UPL	B-Forb	WILD PARSNIP	3
6	Phlox glaberrima sp. interior	-3	FACW	P-Forb	SMOOTH PHLOX	1-2
7	Phlox pilosa	1	FAC-	P-Forb	SAND PRAIRIE PHLOX	1-2
1	Phragmites australis	-4	FACW+	P-Grass	COMMON REED	1-2
3	Physalis virginiana	5	UPL	P-Forb	LANCE-LEAVED GROUND CHERRY	1-2

Table 7 continued

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
0	POA COMPRESSA	2	FACU+	P-Grass	CANADIAN BLUE GRASS	2-3
0	POA PRATENSIS	1	FAC-	P-Grass	KENTUCKY BLUE GRASS	2-3
3	Potentilla simplex	4	FACU-	P-Forb	COMMON CINQUEFOIL	2-3
8	Prenanthes racemosa	-3	FACW	P-Forb	GLAUCOUS WHITE LETTUCE	1
1	Prunella vulgaris v. elongata	0	FAC	P-Forb	SELF-HEAL	3-4
3	Prunus americana	5	UPL	Tree	AMERICAN PLUM	2-3
1	Prunus serotina	3	FACU	Tree	WILD BLACK CHERRY	2-3
4	Ratibida pinnata	5	UPL	P-Forb	YELLOW CONEFLOWER	3
1	Rhus glabra	5	UPL	Shrub	SMOOTH SUMAC	2-3
4	Rosa carolina	4	FACU-	Shrub	PASTURE ROSE	3
0	ROSA MULTIFLORA	3	FACU	Shrub	JAPANESE ROSE	2
5	Rosa setigera	2	FACU+	Shrub	ILLINOIS ROSE	2
2	Rubus occidentalis	3	FACU	Shrub	BLACK RASPBERRY	2
2	Rudbeckia hirta	3	FACU	P-Forb	BLACK-EYED SUSAN	3
5	**Schizachyrium scoparium**	**4**	**FACU-**	**P-Grass**	**LITTLE BLUESTEM**	**4**
3	Scirpus pendulus	-5	OBL	P-Sedge	RED BULRUSH	2
5	Silphium integrifolium	5	UPL	P-Forb	ROSIN WEED	3
5	Silphium laciniatum	4	FACU-	P-Forb	COMPASS PLANT	3
4	**Silphium terebinthinaceum**	**1**	**FAC-**	**P-Forb**	**PRAIRIE DOCK**	**4**
4	Sisyrinchium albidum	3	FACU	P-Forb	COMMON BLUE-EYED GRASS	2
5	Smilacina stellata	1	FAC-	P-Forb	STARRY FALSE SOLOMON SEAL	1-2
1	Solidago canadensis	3	FACU	P-Forb	CANADA GOLDENROD	3-4
3	Solidago gigantea	-3	FACW	P-Forb	LATE GOLDENROD	2-3
4	Solidago juncea	5	UPL	P-Forb	EARLY GOLDENROD	2
3	Solidago nemoralis	5	UPL	P-Forb	OLD FIELD GOLDENROD	3
4	**Solidago rigida**	**4**	**FACU-**	**P-Forb**	**RIGID GOLDENROD**	**4**
4	Sorghastrum nutans	2	FACU+	P-Grass	INDIAN GRASS	2-3
4	Spartina pectinata	-4	FACW+	P-Grass	PRAIRIE CORD GRASS	2
3	Sporobolus asper	5	UPL	P-Grass	ROUGH DROPSEED	3
5	Staphylea trifolia	0	FAC	Shrub	BLADDERNUT	2
6	Stipa spartea	5	UPL	P-Grass	PORCUPINE GRASS	2
5	Thalictrum revolutum	0	FAC	P-Forb	WAXY MEADOW RUE	2
0	THLASPI ARVENSE	5	UPL	A-Forb	FIELD PENNY CRESS	2
3	Tradescantia ohiensis	2	FACU+	P-Forb	COMMON SPIDERWORT	3
5	Ulmus americana	-2	FACW-	Tree	AMERICAN ELM	2-3
3	Verbena hastata	-4	FACW+	P-Forb	BLUE VERVAIN	2
6	Veronicastrum virginicum	0	FAC	P-Forb	CULVER'S ROOT	2
2	Vitis riparia	-2	FACW-	W-Vine	RIVERBANK GRAPE	3-4
6	Zizia aurea	-1	FAC+	P-Forb	GOLDEN ALEXANDERS	3

Wetland classification categories follow Reed (1988) for Region 3. Further details are from Taft et al. (1997). Plants are placed within one of five wetland indicator categories: Obligate Wetland (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU), and Upland (UPL). Within any of these five categories, a "+" indicates that a particular taxon has a greater tendency to occur in wetlands while a "-" indicates a lesser tendency. Following this, indicator status categories, in descending order of probability of occurrence in wetland habitat, would be:

-5 Obligate Wetland	(OBL)
-4 Facultative Wetland +	(FACW+)
-3 Facultative Wetland	(FACW)
-2 Facultative Wetland -	(FACW-)
-1 Facultative +	(FAC+)
0 Facultative	(FAC)
1 Facultative -	(FAC-)
2 Facultative Upland +	(FACU+)
3 Facultative Upland	(FACU)
4 Facultative Upland -	(FACU-)
5 Upland	(UPL)

Table 8. Floristic quality assessment and cumulative list of vascular plant species occurring in grade C- to D remnant dry-mesic prairie/mesic prairie (**Prairie Sites 9, 10, 11 & 12** [1.95 acres]) occurring along the CN railroad and IL Route 50, in Peotone, IL, within the IDOT 2012 Illiana Study Area, Will County, Illinois. Abbreviations are as follows: **FQI** = floristic quality index; **C** = coefficient of conservatism; **W** = numeric wetness values for wetland categories (see end of table); **Wetness** = wetland classification category (see end of table); **Physiog.** = physiognomy (combination of structural attributes, life history and taxonomic classification); and **Rel. Abun.** = Relative abundance: **1** = rare, **2** = occasional, **3** = common, **4** = abundant, **5** = very abundant (community dominant). Single letter prefixes accompanying Forb, Grass, Sedge, or Vine classifications are: **A** = annual, **B** = bienniel, **H** = herbaceous, **P** = perennial, and **W** = woody. Scientific names in all capital letters indicate taxa adventive to the region. Species in bold type are community dominants or subdominants.

FLORISTIC QUALITY DATA	Native	62	80.5%	Adventive	15	19.5%
62 NATIVE SPECIES	Tree	8	10.4%	Tree	3	3.9%
77 Total Species	Shrub	6	7.8%	Shrub	1	1.3%
3.2 NATIVE MEAN C	W-Vine	3	3.9%	W-Vine	0	0.0%
2.6 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
25.0 NATIVE FQI	P-Forb	30	39.0%	P-Forb	3	3.9%
22.5 W/Adventives	B-Forb	2	2.6%	B-Forb	4	5.2%
1.6 NATIVE MEAN W	A-Forb	3	3.9%	A-Forb	0	0.0%
1.9 W/Adventives	P-Grass	7	9.1%	P-Grass	4	5.2%
AVG: Fac. Upland (+)	A-Grass	0	0.0%	A-Grass	0	0.0%
	P-Sedge	2	2.6%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Fern	1	1.3%			

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
1	Acer negundo	-2	FACW-	Tree	BOXELDER	2-3
1	Acer saccharinum	-3	FACW	Tree	SILVER MAPLE	2
0	Ambrosia artemisiifolia	3	FACU	A-Forb	COMMON RAGWEED	3
8	Amorpha canescens	5	UPL	Shrub	LEAD PLANT	1
5	Andropogon gerardii	1	FAC-	P-Grass	BIG BLUESTEM	2-3
4	Anemone virginiana	5	UPL	P-Forb	TALL ANEMONE	2
2	Apocynum sibiricum	-1	FAC+	P-Forb	INDIAN HEMP	3
7	Asclepias sullivantii	5	UPL	P-Forb	PRAIRIE MILKWEED	1
0	Asclepias syriaca	5	UPL	P-Forb	COMMON MILKWEED	3
1	Asclepias verticillata	5	UPL	P-Forb	HORSETAIL MILKWEED	3
0	ASPARAGUS OFFICINALIS	3	FACU	P-Forb	GARDEN ASPARAGUS	2
4	Aster novae-angliae	-3	FACW	P-Forb	NEW ENGLAND ASTER	2
0	Aster pilosus	4	FACU-	P-Forb	HAIRY ASTER	3-4
1	Bidens frondosa	-3	FACW	A-Forb	COMMON BEGGAR'S TICKS	2
0	**BROMUS INERMIS**	**5**	**UPL**	**P-Grass**	**HUNGARIAN BROME**	**4**
1	Calystegia sepium	0	FAC	P-Forb	AMERICAN BINDWEED	3
2	Carex molesta	0	FAC	P-Sedge	FIELD OVAL SEDGE	2
5	Carex stricta	-5	OBL	P-Sedge	COMMON TUSSOCK SEDGE	2
3	Cirsium discolor	5	UPL	B-Forb	PASTURE THISTLE	3
4	Cornus obliqua	-5	OBL	Shrub	PALE DOGWOOD	1-2
0	CORONILLA VARIA	5	UPL	P-Forb	CROWN VETCH	2
2	Crataegus crus-galli	0	FAC	Tree	COCK-SPUR HAWTHORN	3-4
0	DAUCUS CAROTA	4	FACU-	B-Forb	QUEEN ANNE'S LACE	3
0	DIPSACUS LACINIATUS	5	UPL	B-Forb	CUT-LEAVED TEASEL	3-4
0	ECHINOPS SPHAEROCEPHALUS	5	UPL	P-Forb	GLOBE THISTLE	2
4	Elymus canadensis	1	FAC-	P-Grass	CANADA WILD RYE	2
0	Equisetum arvense	0	FAC	Fern	COMMON HORSETAIL	2
2	Erigeron strigosus	1	FAC-	P-Forb	DAISY FLEABANE	3
2	Eupatorium altissimum	3	FACU	P-Forb	TALL BONESET	3
3	Euphorbia corollata	5	UPL	P-Forb	FLOWERING SPURGE	3-4
3	Euthamia graminifolia	-2	FACW-	P-Forb	GRASS-LEAVED GOLDENROD	2-3
2	Fraxinus pennsylvanica v. subintegerrima	-3	FACW	Tree	GREEN ASH	3
0	Galium aparine	3	FACU	A-Forb	ANNUAL BEDSTRAW	2
2	Helianthus grosseserratus	-2	FACW-	P-Forb	SAWTOOTH SUNFLOWER	2
6	**Helianthus rigidus**	**5**	**UPL**	**P-Forb**	**PRAIRIE SUNFLOWER**	**4**

Table 8 continued

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
4	Juncus dudleyi	0	FAC	P-Forb	DUDLEY'S RUSH	3
7	Liatris aspera	5	UPL	P-Forb	ROUGH BLAZING STAR	2
6	Lithospermum canescens	5	UPL	P-Forb	HOARY PUCCOON	1-2
0	LONICERA X BELLA	3	FACU	Shrub	SHOWY FLY HONEYSUCKLE	4
3	Lycopus americanus	-5	OBL	P-Forb	COMMON WATER HOREHOUND	2
0	MALUS SIEBOLDII	5	UPL	Tree	JAPANESE CRAB	2-3
0	MELILOTUS ALBA	3	FACU	B-Forb	WHITE SWEET CLOVER	3
4	Monarda fistulosa	3	FACU	P-Forb	WILD BERGAMOT	2-3
0	MORUS ALBA	0	FAC	Tree	WHITE MULBERRY	3-4
0	MUHLENBERGIA ASPERIFOLIA	-3	FACW	P-Grass	SCRATCH GRASS	1
1	Oenothera biennis	3	FACU	B-Forb	COMMON EVENING PRIMROSE	2-3
5	Oxalis violacea	5	UPL	P-Forb	VIOLET WOOD SORREL	1
4	Panicum virgatum	-1	FAC+	P-Grass	PRAIRIE SWITCH GRASS	2-3
8	Parthenium integrifolium	5	UPL	P-Forb	WILD QUININE	1
2	Parthenocissus quinquefolia	1	FAC-	W-Vine	VIRGINIA CREEPER	3
0	PASTINACA SATIVA	5	UPL	B-Forb	WILD PARSNIP	3-4
0	POA COMPRESSA	2	FACU+	P-Grass	CANADIAN BLUE GRASS	2-3
0	POA PRATENSIS	1	FAC-	P-Grass	KENTUCKY BLUE GRASS	3-4
2	Populus deltoides	-1	FAC+	Tree	EASTERN COTTONWOOD	2
3	Prunus americana	5	UPL	Tree	AMERICAN PLUM	2-3
1	Prunus serotina	3	FACU	Tree	WILD BLACK CHERRY	3
4	Ratibida pinnata	5	UPL	P-Forb	YELLOW CONEFLOWER	2-3
1	Rhus glabra	5	UPL	Shrub	SMOOTH SUMAC	2-3
0	ROBINIA PSEUDO-ACACIA	4	FACU-	Tree	BLACK LOCUST	3
4	Rosa carolina	4	FACU-	Shrub	PASTURE ROSE	3
2	Rubus occidentalis	3	FACU	Shrub	BLACK RASPBERRY	2-3
2	Rubus pensylvanicus	1	FAC-	Shrub	YANKEE BLACKBERRY	3
5	Schizachyrium scoparium	4	FACU-	P-Grass	LITTLE BLUESTEM	3
5	Silphium integrifolium	5	UPL	P-Forb	ROSIN WEED	3
5	Silphium laciniatum	4	FACU-	P-Forb	COMPASS PLANT	3
4	Silphium terebinthinaceum	1	FAC-	P-Forb	PRAIRIE DOCK	3
1	**Solidago canadensis**	**3**	**FACU**	**P-Forb**	**CANADA GOLDENROD**	**4-5**
3	Solidago gigantea	-3	FACW	P-Forb	LATE GOLDENROD	2-3
3	Solidago nemoralis	5	UPL	P-Forb	OLD FIELD GOLDENROD	2-3
4	**Solidago rigida**	**4**	**FACU-**	**P-Forb**	**RIGID GOLDENROD**	**4**
7	Solidago speciosa	5	UPL	P-Forb	SHOWY GOLDENROD	1
4	Sorghastrum nutans	2	FACU+	P-Grass	INDIAN GRASS	2-3
4	Spartina pectinata	-4	FACW+	P-Grass	PRAIRIE CORD GRASS	1-2
3	**Sporobolus asper**	**5**	**UPL**	**P-Grass**	**ROUGH DROPSEED**	**4**
5	Ulmus americana	-2	FACW-	Tree	AMERICAN ELM	3
2	Vitis riparia	-2	FACW-	W-Vine	RIVERBANK GRAPE	3
4	Vitis vulpina	-2	FACW-	W-Vine	FROST GRAPE	3

Wetland classification categories follow Reed (1988) for Region 3. Further details are from Taft et al. (1997). Plants are placed within one of five wetland indicator categories: Obligate Wetland (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU), and Upland (UPL). Within any of these five categories, a "+" indicates that a particular taxon has a greater tendency to occur in wetlands while a "-" indicates a lesser tendency. Following this, indicator status categories, in descending order of probability of occurrence in wetland habitat, would be:

-5 Obligate Wetland	(OBL)
-4 Facultative Wetland +	(FACW+)
-3 Facultative Wetland	(FACW)
-2 Facultative Wetland -	(FACW-)
-1 Facultative +	(FAC+)
0 Facultative	(FAC)
1 Facultative -	(FAC-)
2 Facultative Upland +	(FACU+)
3 Facultative Upland	(FACU)
4 Facultative Upland -	(FACU-)
5 Upland	(UPL)

Table 9. Floristic quality assessment and cumulative list of vascular plant species occurring in grade C mesic prairie/wet-mesic prairie/sedge meadow (**Site #2** [0.5 acres]) occurring along the CN railroad in Peotone, IL, within the IDOT 2012 Illiana Study Area, Will County, Illinois. Abbreviations are as follows: **FQI** = floristic quality index; **C** = coefficient of conservatism; **W** = numeric wetness values for wetland categories (see end of table); **Wetness** = wetland classification category (see end of table); **Physiog.** = physiognomy (combination of structural attributes, life history and taxonomic classification); and **Rel. Abun.** = Relative abundance: **1** = rare, **2** = occasional, **3** = common, **4** = abundant, **5** = very abundant (community dominant). Single letter prefixes accompanying Forb, Grass, Sedge, or Vine classifications are: **A** = annual, **B** = bienniel, **H** = herbaceous, **P** = perennial, and **W** = woody. Scientific names in all capital letters indicate taxa adventive to the region. Species in bold type are community dominants or subdominants.

FLORISTIC QUALITY DATA	Native	70	93.3%	Adventive	5	6.7%
70 NATIVE SPECIES	Tree	0	0.0%	Tree	0	0.0%
75 Total Species	Shrub	1	1.3%	Shrub	1	1.3%
3.6 NATIVE MEAN C	W-Vine	2	2.7%	W-Vine	0	0.0%
3.4 W/Adventives	H-Vine	1	1.3%	H-Vine	0	0.0%
30.5 NATIVE FQI	P-Forb	47	62.7%	P-Forb	2	2.7%
29.4 W/Adventives	B-Forb	1	1.3%	B-Forb	1	1.3%
-1.8 NATIVE MEAN W	A-Forb	4	5.3%	A-Forb	0	0.0%
-1.6 W/Adventives	P-Grass	5	6.7%	P-Grass	1	1.3%
AVG: Fac. Wetland (-)	A-Grass	0	0.0%	A-Grass	0	0.0%
	P-Sedge	7	9.3%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Fern	2	2.7%			

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
0	Agrostis alba	-3	FACW	P-Grass	RED TOP	2-3
2	Allium canadense	3	FACU	P-Forb	WILD GARLIC	2-3
0	Ambrosia trifida	-1	FAC+	A-Forb	GIANT RAGWEED	3
5	**Andropogon gerardii**	**1**	**FAC-**	**P-Grass**	**BIG BLUESTEM**	**4**
2	**Apocynum sibiricum**	**-1**	**FAC+**	**P-Forb**	**INDIAN HEMP**	**4**
4	Asclepias incarnata	-5	OBL	P-Forb	SWAMP MILKWEED	2-3
7	Asclepias sullivantii	5	UPL	P-Forb	PRAIRIE MILKWEED	2-3
4	Aster novae-angliae	-3	FACW	P-Forb	NEW ENGLAND ASTER	2-3
4	Aster praealtus	-5	OBL	P-Forb	WILLOW ASTER	2-3
1	Bidens frondosa	-3	FACW	A-Forb	COMMON BEGGAR'S TICKS	2-3
3	Calamagrostis canadensis	-5	OBL	P-Grass	BLUE JOINT GRASS	2-3
1	**Calystegia sepium**	**0**	**FAC**	**P-Forb**	**AMERICAN BINDWEED**	**4**
3	Carex cristatella	-4	FACW+	P-Sedge	CRESTED OVAL SEDGE	2
4	Carex lanuginosa	-5	OBL	P-Sedge	WOOLY SEDGE	3
5	Carex sartwellii	-5	OBL	P-Sedge	RUNNING MARSH SEDGE	2
5	**Carex stricta**	**-5**	**OBL**	**P-Sedge**	**COMMON TUSSOCK SEDGE**	**4-5**
3	Carex vulpinoidea	-5	OBL	P-Sedge	BROWN FOX SEDGE	3
1	Cassia fasciculata	4	FACU-	A-Forb	GOLDEN CASSIA	2
4	Cicuta maculata	-5	OBL	B-Forb	WATER HEMLOCK	2-3
5	Desmodium canadense	1	FAC-	P-Forb	SHOWY TICK TREFOIL	2
0	DIPSACUS LACINIATUS	5	UPL	B-Forb	CUT-LEAVED TEASEL	2
0	ECHINOPS SPHAEROCEPHALUS	5	UPL	P-Forb	GLOBE THISTLE	1-2
0	Equisetum arvense	0	FAC	Fern	COMMON HORSETAIL	2
4	Equisetum laevigatum	-3	FACW	Fern	SMOOTH SCOURING RUSH	2-3
2	Eupatorium altissimum	3	FACU	P-Forb	TALL BONESET	2
1	Eupatorium serotinum	-1	FAC+	P-Forb	LATE BONESET	2-3
3	Euthamia graminifolia	-2	FACW-	P-Forb	GRASS-LEAVED GOLDENROD	3
2	Fragaria virginiana	1	FAC-	P-Forb	WILD STRAWBERRY	2
5	Galium obtusum	-4	FACW+	P-Forb	WILD MADDER	2
2	Geum laciniatum	-3	FACW	P-Forb	ROUGH AVENS	2
3	Helenium autumnale	-4	FACW+	P-Forb	SNEEZEWEED	2
2	**Helianthus grosseserratus**	**-2**	**FACW-**	**P-Forb**	**SAWTOOTH SUNFLOWER**	**4**
5	Hypericum sphaerocarpum	3	FACU	P-Forb	ROUND-FRUITED ST. JOHN'S WORT	2
4	Juncus dudleyi	0	FAC	P-Forb	DUDLEY'S RUSH	3-4
3	Juncus torreyi	-3	FACW	P-Forb	TORREY'S RUSH	2
6	Lilium michiganense	-1	FAC+	P-Forb	MICHIGAN LILY	1-2

Table 9 continued

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
3	Lycopus americanus	-5	OBL	P-Forb	COMMON WATER HOREHOUND	2
6	Lysimachia lanceolata	0	FAC	P-Forb	LANCE-LEAVED LOOSESTRIFE	2
8	Lysimachia quadriflora	-5	OBL	P-Forb	NARROW-LEAVED LOOSESTRIFE	2-3
5	Lythrum alatum	-5	OBL	P-Forb	WINGED LOOSESTRIFE	2-3
4	Mentha arvensis v. villosa	-3	FACW	P-Forb	WILD MINT	2
0	MENTHA X PIPERITA	-5	OBL	P-Forb	PEPPERMINT	1-2
4	Monarda fistulosa	3	FACU	P-Forb	WILD BERGAMOT	2
6	Oenothera pilosella	1	FAC-	P-Forb	PRAIRIE SUNDROPS	2
7	Oxypolis rigidior	-5	OBL	P-Forb	COWBANE	2
4	Panicum virgatum	-1	FAC+	P-Grass	PRAIRIE SWITCH GRASS	2-3
0	PHALARIS ARUNDINACEA	-4	FACW+	P-Grass	REED CANARY GRASS	2
6	Phlox glaberrima sp. interior	-3	FACW	P-Forb	SMOOTH PHLOX	2-3
6	Physostegia virginiana	-3	FACW	P-Forb	OBEDIENT PLANT	2
3	Polygonum amphibium	-5	OBL	P-Forb	WATER KNOTWEED	2
2	Polygonum scandens	0	FAC	H-Vine	CLIMBING FALSE BUCKWHEAT	2
4	Pycnanthemum tenuifolium	0	FAC	P-Forb	SLENDER MOUNTAIN MINT	2
5	**Pycnanthemum virginianum**	**-4**	**FACW+**	**P-Forb**	**COMMON MOUNTAIN MINT**	**4**
4	Ratibida pinnata	5	UPL	P-Forb	YELLOW CONEFLOWER	3
4	Rorippa palustris	-5	OBL	A-Forb	MARSH YELLOW CRESS	1-2
0	ROSA MULTIFLORA	3	FACU	Shrub	JAPANESE ROSE	1-2
1	Salix exigua	-5	OBL	Shrub	SANDBAR WILLOW	2-3
4	Scirpus atrovirens	-5	OBL	P-Sedge	DARK GREEN RUSH	2-3
3	Scirpus pendulus	-5	OBL	P-Sedge	RED BULRUSH	2
4	Scutellaria lateriflora	-5	OBL	P-Forb	MAD-DOG SKULLCAP	2
5	Silphium integrifolium	5	UPL	P-Forb	ROSIN WEED	2-3
5	Silphium laciniatum	4	FACU-	P-Forb	COMPASS PLANT	2
4	Silphium terebinthinaceum	1	FAC-	P-Forb	PRAIRIE DOCK	2-3
1	Solidago canadensis	3	FACU	P-Forb	CANADA GOLDENROD	3
3	Solidago gigantea	-3	FACW	P-Forb	LATE GOLDENROD	3
7	**Solidago riddellii**	**-5**	**OBL**	**P-Forb**	**RIDDELL'S GOLDENROD**	**4**
4	Solidago rigida	4	FACU-	P-Forb	RIGID GOLDENROD	2-3
4	Spartina pectinata	-4	FACW+	P-Grass	PRAIRIE CORD GRASS	3
5	Stachys palustris	-5	OBL	P-Forb	WOUNDWORT	2
3	Tradescantia ohiensis	2	FACU+	P-Forb	COMMON SPIDERWORT	2
1	Typha latifolia	-5	OBL	P-Forb	BROAD-LEAVED CATTAIL	2-3
3	Verbena hastata	-4	FACW+	P-Forb	BLUE VERVAIN	2
2	Vitis riparia	-2	FACW-	W-Vine	RIVERBANK GRAPE	2
4	Vitis vulpina	-2	FACW-	W-Vine	FROST GRAPE	2
6	Zizia aurea	-1	FAC+	P-Forb	GOLDEN ALEXANDERS	2-3

Wetland classification categories follow Reed (1988) for Region 3. Further details are from Taft et al. (1997). Plants are placed within one of five wetland indicator categories: Obligate Wetland (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU), and Upland (UPL). Within any of these five categories, a "+" indicates that a particular taxon has a greater tendency to occur in wetlands while a "-" indicates a lesser tendency. Following this, indicator status categories, in descending order of probability of occurrence in wetland habitat, would be:

-5 Obligate Wetland	(OBL)
-4 Facultative Wetland +	(FACW+)
-3 Facultative Wetland	(FACW)
-2 Facultative Wetland -	(FACW-)
-1 Facultative +	(FAC+)
0 Facultative	(FAC)
1 Facultative -	(FAC-)
2 Facultative Upland +	(FACU+)
3 Facultative Upland	(FACU)
4 Facultative Upland -	(FACU-)
5 Upland	(UPL)

Table 10. Floristic quality assessment and cumulative list of vascular plant species occurring in grade C- to D+ dry-mesic sand prairie (**Prairie Site 13** [0.36 acres]) occurring west of Wilmington, in the IDOT 2012 Illiana Study Area, Will County, Illinois. Abbreviations are as follows: **FQI** = floristic quality index; **C** = coefficient of conservatism; **W** = numeric wetness values for wetland categories (see end of table); **Wetness** = wetland classification category (see end of table); **Physiog.** = physiognomy (combination of structural attributes, life history and taxonomic classification); and **Rel. Abun.** = Relative abundance: **1** = rare, **2** = occasional, **3** = common, **4** = abundant, **5** = very abundant (community dominant). Single letter prefixes accompanying Forb, Grass, Sedge, or Vine classifications are: **A** = annual, **B** = bienniel, **H** = herbaceous, **P** = perennial, and **W** = woody. Scientific names in all capital letters indicate taxa adventive to the region. Species in bold type are community dominants or subdominants, or were locally dominant.

FLORISTIC QUALITY DATA	Native	48	80.0%	Adventive	12	20.0%
48 NATIVE SPECIES	Tree	1	1.7%	Tree	1	1.7%
60 Total Species	Shrub	2	3.3%	Shrub	1	1.7%
3.2 NATIVE MEAN C	W-Vine	0	0.0%	W-Vine	0	0.0%
2.6 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
22.4 NATIVE FQI	P-Forb	17	28.3%	P-Forb	2	3.3%
20.0 W/Adventives	B-Forb	2	3.3%	B-Forb	1	1.7%
1.9 NATIVE MEAN W	A-Forb	9	15.0%	A-Forb	1	1.7%
1.9 W/Adventives	P-Grass	10	16.7%	P-Grass	6	10.0%
AVG: Fac. Upland (+)	A-Grass	1	1.7%	A-Grass	0	0.0%
	P-Sedge	6	10.0%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Fern	0	0.0%			

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
6	Agalinis purpurea	-3	FACW	A-Forb	FALSE FOXGLOVE	2
0	Ambrosia artemisiifolia	3	FACU	A-Forb	COMMON RAGWEED	2-3
5	**Andropogon gerardii**	**1**	**FAC-**	**P-Grass**	**BIG BLUESTEM**	**3-4**
1	**Andropogon virginicus**	**1**	**FAC-**	**P-Grass**	**BROOM SEDGE**	**4**
6	Asclepias hirtella	5	UPL	P-Forb	TALL GREEN MILKWEED	1-2
1	Asclepias verticillata	5	UPL	P-Forb	HORSETAIL MILKWEED	2
0	Aster pilosus	4	FACU-	P-Forb	HAIRY ASTER	2-3
1	Bidens aristosa	-3	FACW	A-Forb	SWAMP MARIGOLD	1-2
8	Carex longii	0	FAC	P-Sedge	ROUND-SHOULDERED OVAL SEDGE	1-2
5	Carex scoparia	-3	FACW	P-Sedge	LANCE-FRUITED OVAL SEDGE	2
1	Cassia fasciculata	4	FACU-	A-Forb	GOLDEN CASSIA	2-3
0	Conyza canadensis	1	FAC-	A-Forb	HORSEWEED	2
5	Cyperus filiculmis	4	FACU-	P-Sedge	SLENDER SAND SEDGE	2
4	Cyperus X mesochorus	5	UPL	P-Sedge	MIDLAND SAND SEDGE	2
0	DACTYLIS GLOMERATA	3	FACU	P-Grass	ORCHARD GRASS	2
3	**Danthonia spicata**	**5**	**UPL**	**P-Grass**	**POVERTY OAT GRASS**	**3-4**
0	DAUCUS CAROTA	4	FACU-	B-Forb	QUEEN ANNE'S LACE	2
0	DIANTHUS ARMERIA	5	UPL	A-Forb	DEPTFORD PINK	2
3	Eragrostis spectabilis	5	UPL	P-Grass	PURPLE LOVE GRASS	2-3
2	Eupatorium altissimum	3	FACU	P-Forb	TALL BONESET	3
1	Eupatorium serotinum	-1	FAC+	P-Forb	LATE BONESET	2
3	Euthamia graminifolia	-2	FACW-	P-Forb	GRASS-LEAVED GOLDENROD	3-4
0	FESTUCA ARUNDINACEA	2	FACU+	P-Grass	TALL FESCUE	2
2	Gnaphalium obtusifolium	5	UPL	B-Forb	OLD-FIELD BALSAM	2
5	Hieracium gronovii	5	UPL	P-Forb	HAIRY HAWKWEED	1-2
4	Juncus effusus v. solutus	-5	OBL	P-Forb	COMMON RUSH	2-3
6	Juncus nodosus	-5	OBL	P-Forb	JOINT RUSH	2
1	Lactuca canadensis	2	FACU+	B-Forb	WILD LETTUCE	2
0	Lepidium virginicum	4	FACU-	A-Forb	COMMON PEPPERGRASS	2
4	Leptoloma cognatum	5	UPL	P-Grass	FALL WITCH GRASS	3
4	Lespedeza capitata	3	FACU	P-Forb	ROUND-HEADED BUSH CLOVER	2-3
7	Liatris aspera	5	UPL	P-Forb	ROUGH BLAZING STAR	2-3

Table 10 Continued

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
5	Ludwigia alternifolia	-5	OBL	P-Forb	SEEDBOX	1-2
0	MALUS SIEBOLDII	5	UPL	Tree	JAPANESE CRAB	2
0	Panicum dichotomiflorum	-2	FACW-	A-Grass	FALL PANICUM	1-2
2	Panicum implicatum	0	FAC	P-Grass	OLD FIELD PANIC GRASS	3
2	Paspalum laeve	5	UPL	P-Grass	SMOOTH LENS GRASS	2
0	PHALARIS ARUNDINACEA	-4	FACW+	P-Grass	REED CANARY GRASS	2
0	PHLEUM PRATENSE	3	FACU	P-Grass	TIMOTHY	2-3
0	POA COMPRESSA	2	FACU+	P-Grass	CANADIAN BLUE GRASS	3
0	POA PRATENSIS	1	FAC-	P-Grass	KENTUCKY BLUE GRASS	2
0	Poinsettia dentata	5	UPL	A-Forb	TOOTHED SPURGE	1-2
5	Polygala sanguinea	3	FACU	A-Forb	FIELD MILKWORT	2
3	Potentilla simplex	4	FACU-	P-Forb	COMMON CINQUEFOIL	2-3
5	Quercus velutina	5	UPL	Tree	BLACK OAK	2-3
0	RHAMNUS FRANGULA	-1	FAC+	Shrub	GLOSSY BUCKTHORN	1-2
10	Rhynchospora capitellata	-5	OBL	P-Sedge	BROWN BEAK RUSH	2
4	Rosa carolina	4	FACU-	Shrub	PASTURE ROSE	2-3
2	Rubus flagellaris	4	FACU-	Shrub	COMMON DEWBERRY	2-3
0	RUMEX ACETOSELLA	0	FAC	P-Forb	FIELD SORREL	3
5	Schizachyrium scoparium	4	FACU-	P-Grass	LITTLE BLUESTEM	2
5	Scirpus cyperinus	-5	OBL	P-Sedge	WOOL GRASS	1-2
0	Solanum carolinense	4	FACU-	P-Forb	HORSE NETTLE	2
1	Solidago canadensis	3	FACU	P-Forb	CANADA GOLDENROD	2-3
3	**Solidago nemoralis**	**5**	**UPL**	**P-Forb**	**OLD FIELD GOLDENROD**	**4**
4	**Sorghastrum nutans**	**2**	**FACU+**	**P-Grass**	**INDIAN GRASS**	**3-4**
4	Strophostyles leiosperma	5	UPL	A-Forb	SMALL WILD BEAN	2
1	Tridens flavus	5	UPL	P-Grass	COMMON PURPLETOP	3
0	TRIFOLIUM HYBRIDUM	1	FAC-	P-Forb	ALSIKE CLOVER	2
6	Viola sagittata	-2	FACW-	P-Forb	ARROW-LEAVED VIOLET	1-2

Wetland classification categories follow Reed (1988) for Region 3. Further details are from Taft et al. (1997). Plants are placed within one of five wetland indicator categories: Obligate Wetland (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU), and Upland (UPL). Within any of these five categories, a "+" indicates that a particular taxon has a greater tendency to occur in wetlands while a "-" indicates a lesser tendency. Following this, indicator status categories, in descending order of probability of occurrence in wetland habitat, would be:

-5 Obligate Wetland	(OBL)
-4 Facultative Wetland +	(FACW+)
-3 Facultative Wetland	(FACW)
-2 Facultative Wetland -	(FACW-)
-1 Facultative +	(FAC+)
0 Facultative	(FAC)
1 Facultative -	(FAC-)
2 Facultative Upland +	(FACU+)
3 Facultative Upland	(FACU)
4 Facultative Upland -	(FACU-)
5 Upland	(UPL)

Table 11. Floristic quality assessment and cumulative list of vascular plant species occurring in grade C- to D+ dry-mesic sand prairie (**Prairie Sites 14 & 15** [3.4 acres]) occurring along northbound and southbound lanes of Interstate-55, west of Wilmington, in the IDOT 2012 Illiana Study Area, Will County, Illinois. Abbreviations are as follows: **FQI** = floristic quality index; **C** = coefficient of conservatism; **W** = numeric wetness values for wetland categories (see end of table); **Wetness** = wetland classification category (see end of table); **Physiog.** = physiognomy (combination of structural attributes, life history and taxonomic classification); and **Rel. Abun.** = Relative abundance: **1** = rare, **2** = occasional, **3** = common, **4** = abundant, **5** = very abundant (community dominant). Single letter prefixes accompanying Forb, Grass, Sedge, or Vine classifications are: **A** = annual, **B** = bienniel, **H** = herbaceous, **P** = perennial, and **W** = woody. Scientific names in all capital letters indicate taxa adventive to the region. Species in bold type are community dominants or subdominants, or were locally dominant.

FLORISTIC QUALITY DATA	Native	53	80.3%	Adventive	13	19.7%
53 NATIVE SPECIES	Tree	3	4.5%	Tree	2	3.0%
66 Total Species	Shrub	5	7.6%	Shrub	4	6.1%
3.6 NATIVE MEAN C	W-Vine	3	4.5%	W-Vine	0	0.0%
2.9 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
26.1 NATIVE FQI	P-Forb	27	40.9%	P-Forb	3	4.5%
23.4 W/Adventives	B-Forb	3	4.5%	B-Forb	1	1.5%
1.9 NATIVE MEAN W	A-Forb	1	1.5%	A-Forb	0	0.0%
2.1 W/Adventives	P-Grass	5	7.6%	P-Grass	3	4.5%
AVG: Fac. Upland (+)	A-Grass	0	0.0%	A-Grass	0	0.0%
	P-Sedge	6	9.1%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Fern	0	0.0%			

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
0	ACHILLEA MILLEFOLIUM	3	FACU	P-Forb	COMMON MILFOIL	3
5	Andropogon gerardii	1	FAC-	P-Grass	BIG BLUESTEM	1-2
1	**Andropogon virginicus**	**1**	**FAC-**	**P-Grass**	**BROOM SEDGE**	**4-5**
4	Antennaria neglecta	5	UPL	P-Forb	CAT'S FOOT	2
4	Antennaria plantaginifolia	5	UPL	P-Forb	PUSSY TOES	3
2	Apocynum sibiricum	-1	FAC+	P-Forb	INDIAN HEMP	2
6	Asclepias hirtella	5	UPL	P-Forb	TALL GREEN MILKWEED	2
0	Asclepias syriaca	5	UPL	P-Forb	COMMON MILKWEED	2
4	Aster ericoides	4	FACU-	P-Forb	HEATH ASTER	2
3	Carex annectens	-3	FACW	P-Sedge	LARGE YELLOW FOX SEDGE	2
4	Carex brevior	0	FAC	P-Sedge	PLAINS OVAL SEDGE	2
4	Carex lanuginosa	-5	OBL	P-Sedge	WOOLY SEDGE	1-2
5	Carex scoparia	-3	FACW	P-Sedge	LANCE-FRUITED OVAL SEDGE	1-2
8	Carex swanii	3	FACU	P-Sedge	DOWNY GREEN SEDGE	2
1	Cassia fasciculata	4	FACU-	A-Forb	GOLDEN CASSIA	2-3
3	Cirsium discolor	5	UPL	B-Forb	PASTURE THISTLE	2
1	Claytonia virginica	3	FACU	P-Forb	SPRING BEAUTY	2
6	Comandra umbellata	3	FACU	P-Forb	BASTARD TOAD-FLAX	2
4	Coreopsis tripteris	0	FAC	P-Forb	TALL COREOPSIS	2
2	Cornus racemosa	-2	FACW-	Shrub	GRAY DOGWOOD	3
0	DAUCUS CAROTA	4	FACU-	B-Forb	QUEEN ANNE'S LACE	3
0	**ELAEAGNUS UMBELLATA**	**5**	**UPL**	**Shrub**	**AUTUMN OLIVE**	**4-5**
2	Erigeron strigosus	1	FAC-	P-Forb	DAISY FLEABANE	3-4
1	Eupatorium serotinum	-1	FAC+	P-Forb	LATE BONESET	2-3
3	**Euphorbia corollata**	**5**	**UPL**	**P-Forb**	**FLOWERING SPURGE**	**4-5**
3	Euthamia graminifolia	-2	FACW-	P-Forb	GRASS-LEAVED GOLDENROD	3
0	FESTUCA ARUNDINACEA	2	FACU+	P-Grass	TALL FESCUE	3
2	Fragaria virginiana	1	FAC-	P-Forb	WILD STRAWBERRY	3-4
7	Helianthus mollis	5	UPL	P-Forb	DOWNY SUNFLOWER	3
4	Juncus dudleyi	0	FAC	P-Forb	DUDLEY'S RUSH	2
1	Juniperus virginiana	3	FACU	Tree	EASTERN RED CEDAR	3-4
4	Lespedeza capitata	3	FACU	P-Forb	ROUND-HEADED BUSH CLOVER	2

Table 11 Continued

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
7	Liatris spicata	0	FAC	P-Forb	MARSH BLAZING STAR	1-2
0	**LONICERA MAACKII**	**5**	**UPL**	**Shrub**	**AMUR HONEYSUCKLE**	**4**
0	**LONICERA X BELLA**	**3**	**FACU**	**Shrub**	**SHOWY FLY HONEYSUCKLE**	**4**
0	**MALUS SIEBOLDII**	**5**	**UPL**	**Tree**	**JAPANESE CRAB**	**4-5**
1	Oenothera biennis	3	FACU	B-Forb	COMMON EVENING PRIMROSE	2
0	Oxalis dillenii	3	FACU	P-Forb	COMMON WOOD SORREL	2-3
4	Panicum virgatum	-1	FAC+	P-Grass	PRAIRIE SWITCH GRASS	2-3
8	Parthenium integrifolium	5	UPL	P-Forb	WILD QUININE	2-3
2	Parthenocissus quinquefolia	1	FAC-	W-Vine	VIRGINIA CREEPER	3-4
0	**PINUS SYLVESTRIS**	**5**	**UPL**	**Tree**	**SCOTCH PINE**	**4**
0	PLANTAGO LANCEOLATA	0	FAC	P-Forb	ENGLISH PLANTAIN	3
0	POA COMPRESSA	2	FACU+	P-Grass	CANADIAN BLUE GRASS	3
0	**POA PRATENSIS**	**1**	**FAC-**	**P-Grass**	**KENTUCKY BLUE GRASS**	**4**
7	Polygala polygama v. obtusata	4	FACU-	B-Forb	PURPLE MILKWORT	2
3	Potentilla simplex	4	FACU-	P-Forb	COMMON CINQUEFOIL	3
1	Prunus serotina	3	FACU	Tree	WILD BLACK CHERRY	3
4	Pycnanthemum tenuifolium	0	FAC	P-Forb	SLENDER MOUNTAIN MINT	2
5	Quercus velutina	5	UPL	Tree	BLACK OAK	3-4
0	RHAMNUS CATHARTICA	3	FACU	Shrub	COMMON BUCKTHORN	2-3
1	Rhus glabra	5	UPL	Shrub	SMOOTH SUMAC	2
4	Rosa carolina	4	FACU-	Shrub	PASTURE ROSE	3
2	Rubus flagellaris	4	FACU-	Shrub	COMMON DEWBERRY	3
2	Rubus pensylvanicus	1	FAC-	Shrub	YANKEE BLACKBERRY	3
0	RUMEX ACETOSELLA	0	FAC	P-Forb	FIELD SORREL	4
5	Schizachyrium scoparium	4	FACU-	P-Grass	LITTLE BLUESTEM	2-3
9	Scleria triglomerata	0	FAC	P-Sedge	TALL NUT GRASS	1-2
1	**Solidago canadensis**	**3**	**FACU**	**P-Forb**	**CANADA GOLDENROD**	**4**
4	Solidago juncea	5	UPL	P-Forb	EARLY GOLDENROD	2
7	Solidago speciosa	5	UPL	P-Forb	SHOWY GOLDENROD	1-2
4	Sorghastrum nutans	2	FACU+	P-Grass	INDIAN GRASS	3
1	Toxicodendron radicans	3	FACU	W-Vine	POISON IVY	3-4
3	Tradescantia ohiensis	2	FACU+	P-Forb	COMMON SPIDERWORT	2
7	Viola lanceolata	-5	OBL	P-Forb	LANCE-LEAVED VIOLET	1-2
4	Vitis vulpina	-2	FACW-	W-Vine	FROST GRAPE	2

Wetland classification categories follow Reed (1988) for Region 3. Further details are from Taft et al. (1997). Plants are placed within one of five wetland indicator categories: Obligate Wetland (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU), and Upland (UPL). Within any of these five categories, a "+" indicates that a particular taxon has a greater tendency to occur in wetlands while a "-" indicates a lesser tendency. Following this, indicator status categories, in descending order of probability of occurrence in wetland habitat, would be:

-5 Obligate Wetland	(OBL)
-4 Facultative Wetland +	(FACW+)
-3 Facultative Wetland	(FACW)
-2 Facultative Wetland -	(FACW-)
-1 Facultative +	(FAC+)
0 Facultative	(FAC)
1 Facultative -	(FAC-)
2 Facultative Upland +	(FACU+)
3 Facultative Upland	(FACU)
4 Facultative Upland -	(FACU-)
5 Upland	(UPL)

Table 12. Floristic quality assessment and cumulative list of vascular plant species occurring in grade C- to D+ dry/dry-mesic/mesic sand prairie (**Prairie Site 16** [2.2 acres]) occurring west of Wilmington, in the IDOT 2012 Illiana Study Area, Will County, Illinois. Abbreviations are as follows: **FQI** = floristic quality index; **C** = coefficient of conservatism; **W** = numeric wetness values for wetland categories (see end of table); **Wetness** = wetland classification category (see end of table); **Physiog.** = physiognomy (combination of structural attributes, life history and taxonomic classification); and **Rel. Abun.** = Relative abundance: **1** = rare, **2** = occasional, **3** = common, **4** = abundant, **5** = very abundant (community dominant). Single letter prefixes accompanying Forb, Grass, Sedge, or Vine classifications are: **A** = annual, **B** = bienniel, **H** = herbaceous, **P** = perennial, and **W** = woody. Scientific names in all capital letters indicate taxa adventive to the region. Species in bold type are community dominants or subdominants, or were locally dominant.

FLORISTIC QUALITY DATA	Native	67	83.7%	Adventive	13	16.3%
67 NATIVE SPECIES	Tree	3	3.8%	Tree	1	1.3%
80 Total Species	Shrub	5	6.3%	Shrub	0	0.0%
3.5 NATIVE MEAN C	W-Vine	2	2.5%	W-Vine	0	0.0%
2.9 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
28.6 NATIVE FQI	P-Forb	22	27.5%	P-Forb	4	5.0%
26.2 W/Adventives	B-Forb	4	5.0%	B-Forb	3	3.8%
2.4 NATIVE MEAN W	A-Forb	7	8.8%	A-Forb	1	1.3%
2.6 W/Adventives	P-Grass	12	15.0%	P-Grass	3	3.8%
AVG: Fac. Upland (+)	A-Grass	4	5.0%	A-Grass	1	1.3%
	P-Sedge	7	8.8%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Fern	1	1.3%			

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
0	ACHILLEA MILLEFOLIUM	3	FACU	P-Forb	COMMON MILFOIL	3
5	Agrimonia parviflora	-1	FAC+	P-Forb	SWAMP AGRIMONY	2-3
2	Agrostis hyemalis	1	FAC-	P-Grass	HAIR GRASS	2-3
0	Ambrosia artemisiifolia	3	FACU	A-Forb	COMMON RAGWEED	2
1	Andropogon virginicus	1	FAC-	P-Grass	BROOM SEDGE	2
2	Apocynum sibiricum	-1	FAC+	P-Forb	INDIAN HEMP	2-3
6	Aristida basiramea	5	UPL	A-Grass	FORKED-TIP THREE-AWN GRASS	2
0	Aristida oligantha	5	UPL	A-Grass	PLAINS THREE AWN GRASS	2
7	Asclepias amplexicaulis	5	UPL	P-Forb	SAND MILKWEED	2
0	Asclepias syriaca	5	UPL	P-Forb	COMMON MILKWEED	2
9	Asclepias viridiflora	5	UPL	P-Forb	GREEN MILKWEED	2
0	Aster pilosus	4	FACU-	P-Forb	HAIRY ASTER	2-3
0	BROMUS INERMIS	5	UPL	P-Grass	HUNGARIAN BROME	2
0	BROMUS TECTORUM	5	UPL	A-Grass	CHEAT GRASS	2
3	Carex annectens	-3	FACW	P-Sedge	LARGE YELLOW FOX SEDGE	2
4	Carex brevior	0	FAC	P-Sedge	PLAINS OVAL SEDGE	2
8	Carex longii	0	FAC	P-Sedge	ROUND-SHOULDERED OVAL SEDGE	2-3
5	**Carex pensylvanica**	**5**	**UPL**	**P-Sedge**	**PENNSYLVANIA OAK SEDGE**	**3**
8	Carex swanii	3	FACU	P-Sedge	DOWNY GREEN SEDGE	3
3	Carex vulpinoidea	-5	OBL	P-Sedge	BROWN FOX SEDGE	2
0	CATALPA SPECIOSA	3	FACU	Tree	CIGAR TREE	3
3	Cirsium discolor	5	UPL	B-Forb	PASTURE THISTLE	2-3
0	Conyza canadensis	1	FAC-	A-Forb	HORSEWEED	3
1	Croton glandulosus v. septentrionalis	5	UPL	A-Forb	SAND CROTON	2
4	Cyperus X mesochorus	5	UPL	P-Sedge	MIDLAND SAND SEDGE	2-3
3	Danthonia spicata	5	UPL	P-Grass	POVERTY OAT GRASS	3
0	DAUCUS CAROTA	4	FACU-	B-Forb	QUEEN ANNE'S LACE	2
6	Desmodium sessilifolium	5	UPL	P-Forb	SESSILE-LEAVED TICKTREFOIL	2
0	DIANTHUS ARMERIA	5	UPL	A-Forb	DEPTFORD PINK	2
4	Equisetum laevigatum	-3	FACW	Fern	SMOOTH SCOURING RUSH	2
3	Eragrostis spectabilis	5	UPL	P-Grass	PURPLE LOVE GRASS	3
2	Erigeron strigosus	1	FAC-	P-Forb	DAISY FLEABANE	3
2	Eupatorium altissimum	3	FACU	P-Forb	TALL BONESET	2
3	Euthamia graminifolia	-2	FACW-	P-Forb	GRASS-LEAVED GOLDENROD	3
5	**Euthamia gymnospermoides**	**-1**	**FAC+**	**P-Forb**	**VISCID GRASS-LEAVED GOLDENROD**	**4**
2	Gnaphalium obtusifolium	5	UPL	B-Forb	OLD-FIELD BALSAM	2
7	Helianthemum canadense	5	UPL	P-Forb	COMMON ROCKROSE	2-3

Table 12 Continued

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
5	Hieracium gronovii	5	UPL	P-Forb	HAIRY HAWKWEED	2
3	Juncus interior	-1	FAC+	P-Forb	INLAND RUSH	3
4	Krigia virginica	5	UPL	A-Forb	DWARF DANDELION	2-3
1	Lactuca canadensis	2	FACU+	B-Forb	WILD LETTUCE	2-3
7	Lathyrus palustris	-5	OBL	P-Forb	MARSH VETCHLING	2
6	Lechea tenuifolia	5	UPL	P-Forb	NARROW-LEAVED PINWEED	2-3
0	Lepidium virginicum	4	FACU-	A-Forb	COMMON PEPPERGRASS	3
4	**Leptoloma cognatum**	**5**	**UPL**	**P-Grass**	**FALL WITCH GRASS**	**4**
4	Lespedeza capitata	3	FACU	P-Forb	ROUND-HEADED BUSH CLOVER	3
7	Liatris aspera	5	UPL	P-Forb	ROUGH BLAZING STAR	2-3
4	Linaria canadensis	5	UPL	A-Forb	BLUE TOADFLAX	2-3
7	Lithospermum caroliniense	5	UPL	P-Forb	HAIRY PUCCOON	2
5	Oenothera rhombipetala	3	FACU	B-Forb	SAND PRIMROSE	2-3
5	**Opuntia humifusa**	**5**	**UPL**	**Shrub**	**EASTERN PRICKLY-PEAR**	**4**
4	Panicum clandestinum	-3	FACW	P-Grass	DEER-TONGUE GRASS	2
3	Panicum oligosanthes v. scribnerianum	3	FACU	P-Grass	SCRIBNER'S PANIC GRASS	3-4
5	**Panicum villosissimum**	**5**	**UPL**	**P-Grass**	**WHITE-HAIRED PANIC GRASS**	**4-5**
4	Panicum virgatum	-1	FAC+	P-Grass	PRAIRIE SWITCH GRASS	2
2	Parthenocissus quinquefolia	1	FAC-	W-Vine	VIRGINIA CREEPER	2
1	Plantago aristata	5	UPL	A-Forb	POOR JOE	2
0	POA COMPRESSA	2	FACU+	P-Grass	CANADIAN BLUE GRASS	2
0	**POA PRATENSIS**	**1**	**FAC-**	**P-Grass**	**KENTUCKY BLUE GRASS**	**4-5**
2	Populus deltoides	-1	FAC+	Tree	EASTERN COTTONWOOD	1-2
0	POTENTILLA RECTA	5	UPL	P-Forb	SULFUR CINQUEFOIL	2
3	Potentilla simplex	4	FACU-	P-Forb	COMMON CINQUEFOIL	2-3
1	Prunus serotina	3	FACU	Tree	WILD BLACK CHERRY	2
5	Quercus velutina	5	UPL	Tree	BLACK OAK	3
4	Rosa carolina	4	FACU-	Shrub	PASTURE ROSE	3
2	Rubus flagellaris	4	FACU-	Shrub	COMMON DEWBERRY	3
2	**Rubus pensylvanicus**	**1**	**FAC-**	**Shrub**	**YANKEE BLACKBERRY**	**3-4**
0	RUMEX ACETOSELLA	0	FAC	P-Forb	FIELD SORREL	3
1	**Salix exigua**	**-5**	**OBL**	**Shrub**	**SANDBAR WILLOW**	**3-4**
0	SAPONARIA OFFICINALIS	3	FACU	P-Forb	BOUNCING BET	3
5	Schizachyrium scoparium	4	FACU-	P-Grass	LITTLE BLUESTEM	2
1	**Solidago canadensis**	**3**	**FACU**	**P-Forb**	**CANADA GOLDENROD**	**3-4**
4	Sporobolus cryptandrus	4	FACU-	P-Grass	SAND DROPSEED	2
5	Thalictrum revolutum	0	FAC	P-Forb	WAXY MEADOW RUE	1-2
1	Toxicodendron radicans	3	FACU	W-Vine	POISON IVY	2-3
0	TRAGOPOGON PRATENSIS	5	UPL	B-Forb	COMMON GOAT'S BEARD	2
1	Tridens flavus	5	UPL	P-Grass	COMMON PURPLETOP	3
6	Triplasis purpurea	5	UPL	A-Grass	PURPLE SANDGRASS	3
0	VERBASCUM THAPSUS	5	UPL	B-Forb	WOOLLY MULLEIN	2
2	Vulpia octoflora	-2	FACW-	A-Grass	SIX WEEKS FESCUE	3-4

Wetland classification categories follow Reed (1988) for Region 3. Further details are from Taft et al. (1997). Plants are placed within one of five wetland indicator categories: Obligate Wetland (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU), and Upland (UPL). Within any of these five categories, a "+" indicates that a particular taxon has a greater tendency to occur in wetlands while a "-" indicates a lesser tendency. Following this, indicator status categories, in descending order of probability of occurrence in wetland habitat, would be:

-5 Obligate Wetland	(OBL)
-4 Facultative Wetland +	(FACW+)
-3 Facultative Wetland	(FACW)
-2 Facultative Wetland -	(FACW-)
-1 Facultative +	(FAC+)
0 Facultative	(FAC)
1 Facultative -	(FAC-)
2 Facultative Upland +	(FACU+)
3 Facultative Upland	(FACU)
4 Facultative Upland -	(FACU-)
5 Upland	(UPL)

Table 13. Floristic quality assessment and cumulative list of vascular plant species occurring in grade C to C- mesic sand prairie (**Prairie Site 17** [4.7 acres]) occurring between northbound and southbound lanes of Interstate-55, west of Wilmington, in the IDOT 2012 Illiana Study Area, Will County, Illinois. Abbreviations are as follows: **FQI** = floristic quality index; **C** = coefficient of conservatism; **W** = numeric wetness values for wetland categories (see end of table); **Wetness** = wetland classification category (see end of table); **Physiog.** = physiognomy (combination of structural attributes, life history and taxonomic classification); and **Rel. Abun.** = Relative abundance: **1** = rare, **2** = occasional, **3** = common, **4** = abundant, **5** = very abundant (community dominant). Single letter prefixes accompanying Forb, Grass, Sedge, or Vine classifications are: **A** = annual, **B** = bienniel, **H** = herbaceous, **P** = perennial, and **W** = woody. Scientific names in all capital letters indicate taxa adventive to the region. Species in bold type are community dominants or subdominants, or were locally dominant.

FLORISTIC QUALITY DATA	Native	97	86.6%	Adventive	15	13.4%
97 NATIVE SPECIES	Tree	3	2.7%	Tree	2	1.8%
112 Total Species	Shrub	8	7.1%	Shrub	5	4.5%
4.0 NATIVE MEAN C	W-Vine	3	2.7%	W-Vine	0	0.0%
3.5 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
39.6 NATIVE FQI	P-Forb	56	50.0%	P-Forb	2	1.8%
36.9 W/Adventives	B-Forb	3	2.7%	B-Forb	3	2.7%
-0.2 NATIVE MEAN W	A-Forb	2	1.8%	A-Forb	0	0.0%
0.2 W/Adventives	P-Grass	9	8.0%	P-Grass	3	2.7%
AVG: Faculative	A-Grass	0	0.0%	A-Grass	0	0.0%
	P-Sedge	10	8.9%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Fern	3	2.7%			

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
1	Acer saccharinum	-3	FACW	Tree	SILVER MAPLE	3
0	ACHILLEA MILLEFOLIUM	3	FACU	P-Forb	COMMON MILFOIL	2-3
5	Agalinis tenuifolia	-3	FACW	A-Forb	SLENDER FALSE FOXGLOVE	2
5	Agrimonia parviflora	-1	FAC+	P-Forb	SWAMP AGRIMONY	2-3
0	Agrostis alba	-3	FACW	P-Grass	RED TOP	3
2	Allium canadense	3	FACU	P-Forb	WILD GARLIC	2
5	Andropogon gerardii	1	FAC-	P-Grass	BIG BLUESTEM	1-2
1	**Andropogon virginicus**	**1**	**FAC-**	**P-Grass**	**BROOM SEDGE**	**3-4**
4	Anemone canadensis	-3	FACW	P-Forb	MEADOW ANEMONE	2
4	Anemone virginiana	5	UPL	P-Forb	TALL ANEMONE	2
4	Antennaria neglecta	5	UPL	P-Forb	CAT'S FOOT	3
4	Antennaria plantaginifolia	5	UPL	P-Forb	PUSSY TOES	3
2	Apocynum sibiricum	-1	FAC+	P-Forb	INDIAN HEMP	2
6	Asclepias hirtella	5	UPL	P-Forb	TALL GREEN MILKWEED	2
0	Asclepias syriaca	5	UPL	P-Forb	COMMON MILKWEED	2
4	Aster ericoides	4	FACU-	P-Forb	HEATH ASTER	2
4	Aster novae-angliae	-3	FACW	P-Forb	NEW ENGLAND ASTER	2-3
1	Bidens aristosa	-3	FACW	A-Forb	SWAMP MARIGOLD	2
5	Boltonia asteroides	-3	FACW	P-Forb	FALSE ASTER	2
3	Calamagrostis canadensis	-5	OBL	P-Grass	BLUE JOINT GRASS	2
1	Calystegia sepium	0	FAC	P-Forb	AMERICAN BINDWEED	3
3	Carex annectens	-3	FACW	P-Sedge	LARGE YELLOW FOX SEDGE	2
2	Carex granularis	-4	FACW+	P-Sedge	PALE SEDGE	2
4	Carex lanuginosa	-5	OBL	P-Sedge	WOOLY SEDGE	3
8	Carex longii	0	FAC	P-Sedge	ROUND-SHOULDERED OVAL SEDGE	2
2	Carex molesta	0	FAC	P-Sedge	FIELD OVAL SEDGE	2
5	Carex sartwellii	-5	OBL	P-Sedge	RUNNING MARSH SEDGE	1-2
5	Carex scoparia	-3	FACW	P-Sedge	LANCE-FRUITED OVAL SEDGE	2
8	Carex swanii	3	FACU	P-Sedge	DOWNY GREEN SEDGE	2
3	Carex vulpinoidea	-5	OBL	P-Sedge	BROWN FOX SEDGE	3

Table 13 continued

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
4	Cicuta maculata	-5	OBL	B-Forb	WATER HEMLOCK	2
3	Cirsium discolor	5	UPL	B-Forb	PASTURE THISTLE	2
1	Claytonia virginica	3	FACU	P-Forb	SPRING BEAUTY	2
6	Comandra umbellata	3	FACU	P-Forb	BASTARD TOAD-FLAX	2
4	Coreopsis tripteris	0	FAC	P-Forb	TALL COREOPSIS	2
4	Cornus obliqua	-5	OBL	Shrub	PALE DOGWOOD	2-3
2	Cornus racemosa	-2	FACW-	Shrub	GRAY DOGWOOD	2
0	DAUCUS CAROTA	4	FACU-	B-Forb	QUEEN ANNE'S LACE	2
0	DIPSACUS LACINIATUS	5	UPL	B-Forb	CUT-LEAVED TEASEL	2
0	**ELAEAGNUS UMBELLATA**	**5**	**UPL**	**Shrub**	**AUTUMN OLIVE**	**4**
2	Erigeron strigosus	1	FAC-	P-Forb	DAISY FLEABANE	2
7	Eryngium yuccifolium	-1	FAC+	P-Forb	RATTLESNAKE MASTER	3-4
1	Eupatorium serotinum	-1	FAC+	P-Forb	LATE BONESET	3
3	Euphorbia corollata	5	UPL	P-Forb	FLOWERING SPURGE	3-4
3	**Euthamia graminifolia**	**-2**	**FACW-**	**P-Forb**	**GRASS-LEAVED GOLDENROD**	**4**
0	FESTUCA ARUNDINACEA	2	FACU+	P-Grass	TALL FESCUE	2
2	Fragaria virginiana	1	FAC-	P-Forb	WILD STRAWBERRY	2-3
2	Fraxinus pennsylvanica v. subintegerrima	-3	FACW	Tree	GREEN ASH	3
5	Galium obtusum	-4	FACW+	P-Forb	WILD MADDER	2
2	Geum laciniatum	-3	FACW	P-Forb	ROUGH AVENS	2
2	Helianthus grosseserratus	-2	FACW-	P-Forb	SAWTOOTH SUNFLOWER	2-3
7	**Helianthus mollis**	**5**	**UPL**	**P-Forb**	**DOWNY SUNFLOWER**	**3-4**
4	Juncus dudleyi	0	FAC	P-Forb	DUDLEY'S RUSH	3-4
6	Juncus nodosus	-5	OBL	P-Forb	JOINT RUSH	2
3	Juncus torreyi	-3	FACW	P-Forb	TORREY'S RUSH	2
1	Juniperus virginiana	3	FACU	Tree	EASTERN RED CEDAR	3-4
5	Krigia biflora	3	FACU	P-Forb	FALSE DANDELOIN	1-2
4	Lespedeza capitata	3	FACU	P-Forb	ROUND-HEADED BUSH CLOVER	2
7	Liatris spicata	0	FAC	P-Forb	MARSH BLAZING STAR	2
0	**LONICERA MAACKII**	**5**	**UPL**	**Shrub**	**AMUR HONEYSUCKLE**	**4**
0	**LONICERA X BELLA**	**3**	**FACU**	**Shrub**	**SHOWY FLY HONEYSUCKLE**	**4**
5	Ludwigia alternifolia	-5	OBL	P-Forb	SEEDBOX	1-2
3	Lycopus americanus	-5	OBL	P-Forb	COMMON WATER HOREHOUND	2
6	Lysimachia lanceolata	0	FAC	P-Forb	LANCE-LEAVED LOOSESTRIFE	2
5	Lythrum alatum	-5	OBL	P-Forb	WINGED LOOSESTRIFE	2
0	**MALUS SIEBOLDII**	**5**	**UPL**	**Tree**	**JAPANESE CRAB**	**4-5**
4	Monarda fistulosa	3	FACU	P-Forb	WILD BERGAMOT	2-3
9	Osmunda claytoniana	-1	FAC+	Fern	INTERRUPTED FERN	1-2
8	Osmunda regalis v. spectabilis	-5	OBL	Fern	REGAL FERN	1-2
7	Oxypolis rigidior	-5	OBL	P-Forb	COWBANE	1-2
2	Panicum implicatum	0	FAC	P-Grass	OLD FIELD PANIC GRASS	3
4	**Panicum virgatum**	**-1**	**FAC+**	**P-Grass**	**PRAIRIE SWITCH GRASS**	**3-4**
8	Parthenium integrifolium	5	UPL	P-Forb	WILD QUININE	2-3
2	Parthenocissus quinquefolia	1	FAC-	W-Vine	VIRGINIA CREEPER	3-4
0	PASTINACA SATIVA	5	UPL	B-Forb	WILD PARSNIP	3
6	Penstemon pallidus	5	UPL	P-Forb	PALE BEARD TONGUE	1-2
0	PHALARIS ARUNDINACEA	-4	FACW+	P-Grass	REED CANARY GRASS	2
0	PINUS SYLVESTRIS	5	UPL	Tree	SCOTCH PINE	2
0	**POA PRATENSIS**	**1**	**FAC-**	**P-Grass**	**KENTUCKY BLUE GRASS**	**4**
7	Polygala polygama v. obtusata	4	FACU-	B-Forb	PURPLE MILKWORT	1-2
3	Potentilla simplex	4	FACU-	P-Forb	COMMON CINQUEFOIL	2
1	Prunella vulgaris v. elongata	0	FAC	P-Forb	SELF-HEAL	3

Table 13 continued

C	Scientific Name	W	Wetness	Physiog.	Common Name	Rel. Abun.
4	Pycnanthemum tenuifolium	0	FAC	P-Forb	SLENDER MOUNTAIN MINT	2
5	**Pycnanthemum virginianum**	**-4**	**FACW+**	**P-Forb**	**COMMON MOUNTAIN MINT**	**4**
0	RHAMNUS CATHARTICA	3	FACU	Shrub	COMMON BUCKTHORN	3
4	Rosa carolina	4	FACU-	Shrub	PASTURE ROSE	2
0	ROSA MULTIFLORA	3	FACU	Shrub	JAPANESE ROSE	2
2	Rubus flagellaris	4	FACU-	Shrub	COMMON DEWBERRY	3
2	Rubus pensylvanicus	1	FAC-	Shrub	YANKEE BLACKBERRY	3-4
0	RUMEX ACETOSELLA	0	FAC	P-Forb	FIELD SORREL	2-3
4	Salix discolor	-3	FACW	Shrub	PUSSY WILLOW	2
5	Salix humilis	3	FACU	Shrub	PRAIRIE WILLOW	1-2
5	Schizachyrium scoparium	4	FACU-	P-Grass	LITTLE BLUESTEM	2
9	**Scleria triglomerata**	**0**	**FAC**	**P-Sedge**	**TALL NUT GRASS**	**3-4**
3	Senecio pauperculus	-1	FAC+	P-Forb	BALSAM RAGWORT	1-2
4	Sisyrinchium albidum	3	FACU	P-Forb	COMMON BLUE-EYED GRASS	2
5	Smilacina stellata	1	FAC-	P-Forb	STARRY FALSE SOLOMON SEAL	1-2
1	**Solidago canadensis**	**3**	**FACU**	**P-Forb**	**CANADA GOLDENROD**	**3-4**
3	Solidago gigantea	-3	FACW	P-Forb	LATE GOLDENROD	3
4	Solidago juncea	5	UPL	P-Forb	EARLY GOLDENROD	2
7	Solidago speciosa	5	UPL	P-Forb	SHOWY GOLDENROD	2
4	Sorghastrum nutans	2	FACU+	P-Grass	INDIAN GRASS	2
4	Spartina pectinata	-4	FACW+	P-Grass	PRAIRIE CORD GRASS	2
6	Spiraea alba	-4	FACW+	Shrub	MEADOWSWEET	1-2
7	Thelypteris palustris v. pubescens	-4	FACW+	Fern	MARSH SHIELD FERN	1-2
3	Tradescantia ohiensis	2	FACU+	P-Forb	COMMON SPIDERWORT	2
6	Veronicastrum virginicum	0	FAC	P-Forb	CULVER'S ROOT	2
7	Viola lanceolata	-5	OBL	P-Forb	LANCE-LEAVED VIOLET	1-2
3	Viola sororia	1	FAC-	P-Forb	WOOLLY BLUE VIOLET	1-2
2	Vitis riparia	-2	FACW-	W-Vine	RIVERBANK GRAPE	2
4	Vitis vulpina	-2	FACW-	W-Vine	FROST GRAPE	2
6	Zizia aurea	-1	FAC+	P-Forb	GOLDEN ALEXANDERS	2

Wetland classification categories follow Reed (1988) for Region 3. Further details are from Taft et al. (1997). Plants are placed within one of five wetland indicator categories: Obligate Wetland (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU), and Upland (UPL). Within any of these five categories, a "+" indicates that a particular taxon has a greater tendency to occur in wetlands while a "-" indicates a lesser tendency. Following this, indicator status categories, in descending order of probability of occurrence in wetland habitat, would be:

-5 Obligate Wetland	(OBL)
-4 Facultative Wetland +	(FACW+)
-3 Facultative Wetland	(FACW)
-2 Facultative Wetland -	(FACW-)
-1 Facultative +	(FAC+)
0 Facultative	(FAC)
1 Facultative -	(FAC-)
2 Facultative Upland +	(FACU+)
3 Facultative Upland	(FACU)
4 Facultative Upland -	(FACU-)
5 Upland	(UPL)

Table 14. Summary of tree sampling data collected during 2012 from four forest stands within the IDOT 2012 Illiana Study Area, in Will Co., Illinois. Abbreviations in parentheses for Species Richness indicate the number of native (N) tree species and adventive (Ad) tree species occurring in sampling plots; numbers in bold indicate the total number of species.

Forest Stand #	Stand Size		# of plots	Species Richness		Density		Basal Area	
	acres	hectares		Total	Avg. per plot	trees/acre	trees/ha	ft²/acre	m²/ha
1	21	8.5	8	**13** (N = 12; Ad = 1)	5	145.59	359.75	161.75	37.13
2	30	12.1	8	**7** (N = 6; Ad =1)	4	210.30	519.64	148.97	34.20
3	30	12.1	8	**6** (N = 5; Ad = 1)	3	162.78	402.22	151.54	34.79
4	21	8.5	8	**8** (N = 7; Ad = 1)	4	292.19	722.00	144.11	33.08
Totals	**102**	**41.2**	**32**	**19** (N = 17; Ad = 2)	**4**	**Avg.=202.73**	**Avg.=500.88**	**Avg.=151.60**	**Avg.=34.80**

Table 15. Combined forest sampling data for all trees (stems > 10 cm DBH) occurring in sampling plots at Forest Sites 1 - 4 in the IDOT 2012 Illiana Study Area, Will County, Illinois. Species are arranged in descending rank order of Importance Value (IV 300 [sum of relative density, relative basal area, and relative frequency]). Species with an asterisk (*) are adventive to the region. **Avg. DBH** = average diameter-at-breast-height (cm); **% Freq.** = % of plots a species occurred in (of the combined total of 32 plots).

ALL FOREST SITES (1 - 4)	**Stem Density (Avg.)**		**Basal Area (Avg.)**		**Avg.**	**%**	**Importance Value**	
Species (n=19)	**trees/acre**	**trees/ha**	**BA(ft2/acre)**	**BA(m2/ha)**	**DBH (cm)**	**Freq.**	**IV 300 (%)**	**% IV**
Quercus velutina	103.38	255.45	97.70	22.43	32.5	100.00	141.92	47.31
Quercus alba	31.34	77.45	30.65	7.04	30.1	78.13	58.47	19.49
Prunus serotina	42.21	104.30	12.07	2.77	16.6	81.25	51.43	17.14
Sassafras albidum	10.62	26.23	3.12	0.72	17.9	12.50	9.03	3.01
Ulmus americana	2.53	6.25	0.82	0.19	16.1	21.88	7.97	2.66
Quercus rubra	2.78	6.87	1.89	0.43	25.7	9.38	5.16	1.72
Celtis occidentalis	2.27	5.62	0.81	0.19	18.3	9.38	3.82	1.27
Carya cordiformis	1.52	3.75	0.58	0.13	18.9	9.38	3.80	1.27
*Catalpa speciosa**	1.01	2.50	0.58	0.13	20.0	9.38	3.73	1.24
*Morus alba**	1.26	3.12	0.69	0.16	18.1	9.38	3.31	1.10
Tilia americana	0.51	1.25	0.37	0.08	28.5	6.25	1.96	0.65
Juglans nigra	0.25	0.62	0.94	0.22	66.4	3.13	1.55	0.52
Juniperus virginiana	1.01	2.50	0.16	0.04	13.5	3.13	1.48	0.49
Gleditsia triacanthos	0.25	0.62	0.83	0.19	62.4	3.13	1.38	0.46
Fraxinus pennsylvanica v. *sub.*	0.76	1.87	0.11	0.02	12.9	3.13	1.33	0.44
Acer saccharum	0.25	0.62	0.11	0.02	22.3	3.13	0.93	0.31
Acer saccharinum	0.25	0.62	0.07	0.02	18.0	3.13	0.91	0.30
Crataegus mollis	0.25	0.62	0.02	0.01	10.3	3.13	0.91	0.30
Carya ovata	0.25	0.62	0.06	0.01	16.8	3.13	0.91	0.30
Totals	**202.71**	**500.91**	**151.59**	**34.80**			**300.00**	**100.00**

Table 16. Data from quantitative forest sampling for trees (stems $\geq$ 10 cm DBH) at **Forest Site 1** in the IDOT 2012 Illiana Study Area, Will County, Illinois. Species are arranged in descending rank order of Importance Value (IV 300 [sum of relative density, relative basal area, and relative frequency]). Species with an asterisk (*) are adventive to the region. **Avg. DBH** = average diameter-at-breast-height (cm); **% Freq.** = % of plots a species occurred in.

FOREST SITE 1	**Density**		**Basal Area**		**Avg.**	**%**	**Importance Value**	
Species (n=13)	**trees/acre**	**trees/ha**	**ft^2/acre**	**m^2/ha**	**DBH (cm)**	**Freq.**	**IV 300**	**% IV**
Quercus velutina	42.46	104.93	80.83	18.56	42.6	100.00	101.36	33.79
Prunus serotina	51.56	127.41	19.52	4.48	19.9	87.50	66.93	22.31
Quercus alba	23.25	57.46	43.35	9.95	42.2	75.00	59.44	19.81
Quercus rubra	11.12	27.48	7.57	1.74	25.7	37.50	20.65	6.88
Ulmus americana	4.04	9.99	2.36	0.54	22.7	25.00	9.79	3.26
Carya cordiformis	4.04	9.99	1.77	0.41	21.0	25.00	9.43	3.14
Tilia americana	2.02	5.00	1.46	0.34	28.5	25.00	7.85	2.62
Gleditsia triacanthos	1.01	2.50	3.33	0.76	62.4	12.50	5.53	1.84
Celtis occidentalis	2.02	5.00	0.51	0.12	16.3	12.50	4.48	1.49
Acer saccharum	1.01	2.50	0.43	0.10	22.3	12.50	3.74	1.25
Acer saccharinum	1.01	2.50	0.28	0.06	18.0	12.50	3.64	1.21
Carya ovata	1.01	2.50	0.24	0.06	16.8	12.50	3.62	1.21
*Morus alba**	1.01	2.50	0.10	0.02	10.9	12.50	3.54	1.18
Totals	**145.59**	**359.75**	**161.75**	**37.13**			**300.00**	**100.00**

Table 17. Data from quantitative forest sampling for trees (stems ≥ 10 cm DBH) at **Forest Site 2** in the IDOT 2012 Illiana Study Area, Will County, Illinois. Species are arranged in descending rank order of Importance Value (IV 300 [sum of relative density, relative basal area, and relative frequency]). Species with an asterisk (*) are adventive to the region. **Avg. DBH** = average diameter-at-breast-height (cm); **% Freq.** = % of plots a species occurred in.

FOREST SITE 2	**Density**		**Basal Area**		**Avg.**	**%**	**Importance Value**	
Species (n=7)	**trees/acre**	**trees/ha**	**ft^2/acre**	**m^2/ha**	**DBH (cm)**	**Freq.**	**IV 300**	**% IV**
Quercus velutina	128.40	317.28	118.36	27.17	29.4	100.00	169.08	56.36
Quercus alba	41.45	102.43	21.96	5.04	21.5	75.00	55.88	18.63
Prunus serotina	25.28	62.46	4.58	1.05	14.2	75.00	36.52	12.17
Ulmus americana	5.06	12.49	0.81	0.19	13.6	50.00	17.23	5.74
*Catalpa speciosa**	3.03	7.49	2.20	0.51	27.9	25.00	10.06	3.35
Juniperus virginiana	4.04	9.99	0.63	0.14	13.5	12.50	5.92	1.97
Fraxinus pennsylvanica v. *sub.*	3.03	7.49	0.43	0.10	12.9	12.50	5.30	1.77
	210.30	**519.64**	**148.97**	**34.20**			**300.00**	**100.00**

Table 18. Data from quantitative forest sampling for trees (stems ≥ 10 cm DBH) at **Forest Site 3** in the IDOT 2012 Illiana Study Area, Will County, Illinois. Species are arranged in descending rank order of Importance Value (IV 300 [sum of relative density, relative basal area, and relative frequency]). Species with an asterisk (*) are adventive to the region. **Avg. DBH** = average diameter-at-breast-height (cm); **% Freq.** = % of plots a species occurred in.

FOREST SITE 3	**Density**		**Basal Area**		**Avg.**	**%**	**Importance Value**	
Species (n=6)	**trees/acre**	**trees/ha**	**ft^2/acre**	**m^2/ha**	**DBH (cm)**	**Freq.**	**IV 300**	**% IV**
Quercus velutina	96.05	237.34	119.12	27.35	35.3	100.00	170.95	56.98
Quercus alba	38.42	94.93	27.06	6.21	24.6	87.50	70.63	23.54
Prunus serotina	24.26	59.96	4.57	1.05	14.4	75.00	42.92	14.31
Carya cordiformis	2.02	5.00	0.55	0.13	16.8	12.50	5.77	1.92
*Catalpa speciosa**	1.01	2.50	0.13	0.03	12.1	12.50	4.87	1.62
Ulmus americana	1.01	2.50	0.12	0.03	11.8	12.50	4.87	1.62
Totals	**162.78**	**402.22**	**151.54**	**34.79**			**300.00**	**100.00**

Table 19. Data from quantitative forest sampling for trees (stems ≥ 10 cm DBH) at **Forest Site 4** in the IDOT 2012 Illiana Study Area, Will County, Illinois. Species are arranged in descending rank order of Importance Value (IV 300 [sum of relative density, relative basal area, and relative frequency]). Species with an asterisk (*) are adventive to the region. **Avg. DBH** = average diameter-at-breast-height (cm); **% Freq.** = % of plots a species occurred in.

FOREST SITE 4	**Density**		**Basal Area**		**Avg.**	**%**	**Importance Value**	
Species (n=8)	**trees/acre**	**trees/ha**	**ft^2/acre**	**m^2/ha**	**DBH (cm)**	**Freq.**	**IV 300**	**% IV**
Quercus velutina	146.60	362.25	72.50	16.64	22.7	100.00	126.29	42.10
Prunus serotina	67.74	167.38	19.60	4.50	17.9	87.50	59.37	19.79
Quercus alba	22.24	54.96	30.23	6.94	32.2	75.00	47.95	15.98
Sassafras albidum	42.46	104.93	12.49	2.87	17.9	50.00	36.11	12.04
Celtis occidentalis	7.08	17.49	2.75	0.63	20.4	25.00	10.78	3.59
*Morus alba**	4.04	9.99	2.67	0.61	25.3	25.00	9.69	3.23
Juglans nigra	1.01	2.50	3.77	0.87	66.4	12.50	6.19	2.06
Crataegus mollis	1.01	2.50	0.09	0.02	10.3	12.50	3.63	1.21
Totals	**292.19**	**722.00**	**144.11**	**33.08**			**300.00**	**100.00**

Appendix 3

List of Species Occurring within the IDOT Illiana Study Area

Appendix 3. Cumulative list of vascular plant species (n = 630) and corresponding habitats, observed during the 2012 growing season, in the IDOT 2012 Illiana Study Area, Will County, Illinois. Abbreviations are as follows: C = coefficient of conservatism; Physiog. = physiognomy (combination of structural attributes, life history and taxonomic classification); Single letter prefixes accompanying Forb, Grass, Sedge, or Vine classifications are: A = annual, B = bienniel, H = herbaceous, P = perennial, and W = woody. Scientific names in all capital letters indicate taxa adventive to the region. Wetland community cover-types and species occurring in those community types are provided in the INHS Illiana Wetlands Report.

				Prairie	Forest			Cultural	Wetland
C	SCIENTIFIC NAME	Physiog.	COMMON NAME	Prairie (all classes)	Dry-mesic Sand	Mesic Upland	Mesic/Wet-mesic Floodplain	Cropland, Pature & Hayland, Non-ntaive Grassland, Forbland, Shrubland	Wetland Community(ies)
0	Acalypha rhomboidea	A-Forb	THREE-SEEDED MERCURY		X	X	X	X	X
1	Acer negundo	Tree	BOXELDER	X	X	X	X	X	X
1	Acer saccharinum	Tree	SILVER MAPLE	X			X	X	X
4	Acer saccharum	Tree	SUGAR MAPLE		X	X			
0	ACHILLEA MILLEFOLIUM	P-Forb	COMMON MILFOIL	X				X	
6	Agalinis purpurea	A-Forb	FALSE FOXGLOVE	X					X
5	Agalinis tenuifolia	A-Forb	SLENDER FALSE FOXGLOVE	X					
4	Agastache nepetoides	P-Forb	YELLOW GIANT HYSSOP			X	X		
3	Agrimonia gryposepala	P-Forb	TALL AGRIMONY		X	X			
5	Agrimonia parviflora	P-Forb	SWAMP AGRIMONY	X			X	X	X
0	AGROPYRON REPENS	P-Grass	QUACK GRASS					X	
0	Agrostis alba	P-Grass	RED TOP	X				X	X
2	Agrostis hyemalis	P-Grass	HAIR GRASS	X	X				
2	Alisma plantago-aquatica v. parviflorum	P-Forb	COMMON WATER PLANTAIN				X		X
0	ALLIARIA PETIOLATA	B-Forb	GARLIC MUSTARD		X	X	X	X	
2	Allium canadense	P-Forb	WILD ONION	X		X	X	X	
0	Alopecurus carolinianus	A-Grass	ANNUAL FOXTAIL				X		
0	AMARANTHUS RETROFLEXUS	A-Forb	ROUGH PIGWEED				X	X	X
0	Amaranthus rudis	A-Forb	TAMARISK WATERHEMP				X	X	X
0	Ambrosia artemisiifolia	A-Forb	COMMON RAGWEED	X	X		X	X	X
0	Ambrosia trifida	A-Forb	GIANT RAGWEED	X				X	X
5	Ammannia coccinea	A-Forb	LONG-LEAVED AMMANNIA				X		X
8	Amorpha canescens	Shrub	LEAD PLANT	X					
6	Amorpha fruticosa	Shrub	FALSE INDIGO BUSH			X	X		X
4	Amphicarpaea bracteata	H-Vine	HOG PEANUT			X	X		
5	Andropogon gerardii	P-Grass	BIG BLUESTEM	X					
1	Andropogon virginicus	P-Grass	BROOM SEDGE	X				X	
4	Anemone canadensis	P-Forb	MEADOW ANEMONE	X					X
8	Anemone cylindrica	P-Forb	CANDLE ANEMONE	X					
4	Anemone virginiana	P-Forb	TALL ANEMONE	X	X	X			
6	Angelica atropurpurea	P-Forb	ANGELICA				X		
4	Antennaria neglecta	P-Forb	CAT'S FOOT	X	X				
4	Antennaria plantaginifolia	P-Forb	PUSSY TOES	X	X				
3	Apios americana	H-Vine	GROUND NUT				X		X
6	Apocynum androsaemifolium	P-Forb	SPREADING DOGBANE		X	X			
2	Apocynum cannabinum	P-Forb	Dogbane	X				X	X

Appendix 3 continued

				Prairie	Forest			Cultural	Wetland
C	SCIENTIFIC NAME	Physiog.	COMMON NAME	Prairie (all classes)	Dry-mesic Sand	Mesic Upland	Mesic/Wet-mesic Floodplain	Cropland, Pature & Hayland, Non-ntaive Grassland, Forbland, Shrubland	Wetland Community(ies)
2	Apocynum sibiricum	P-Forb	INDIAN HEMP	X			X	X	X
5	Aquilegia canadensis	P-Forb	COLUMBINE			X			
5	Arabis hirsuta	B-Forb	HAIRY ROCK CRESS					X	
4	Arabis laevigata	B-Forb	SMOOTH ROCK CRESS			X	X		
6	Arabis shortii	B-Forb	TOOTHED CRESS			X	X		
0	ARCTIUM MINUS	B-Forb	COMMON BURDOCK				X	X	
4	Arisaema triphyllum	P-Forb	INDIAN TURNIP		X	X	X		
6	Aristida basiramea	A-Grass	FORKED-TIP THREE-AWN GRASS	X					
0	Aristida oligantha	A-Grass	PLAINS THREE AWN GRASS	X					
8	Aronia melanocarpa	Shrub	BLACK CHOKEBERRY						X
5	Asarum canadense	P-Forb	CANADA WILD GINGER			X	X		
7	Asclepias amplexicaulis	P-Forb	SAND MILKWEED	X					
6	Asclepias hirtella	P-Forb	TALL GREEN MILKWEED	X					
4	Asclepias incarnata	P-Forb	SWAMP MILKWEED	X					X
7	Asclepias sullivantii	P-Forb	PRAIRIE MILKWEED	X					
0	Asclepias syriaca	P-Forb	COMMON MILKWEED	X				X	X
5	Asclepias tuberosa v. interior	P-Forb	BUTTERFLYWEED	X					
1	Asclepias verticillata	P-Forb	HORSETAIL MILKWEED	X				X	
9	Asclepias viridiflora	P-Forb	GREEN MILKWEED	X					
0	ASPARAGUS OFFICINALIS	P-Forb	GARDEN ASPARAGUS	X				X	
4	Asplenium platyneuron	Fern	EBONY SPLEENWORT		X	X			
7	Aster azureus	P-Forb	SKY-BLUE ASTER	X					
3	Aster drummondii	P-Forb	DRUMMOND'S ASTER	X		X			
4	Aster ericoides	P-Forb	HEATH ASTER	X					
9	Aster furcatus	P-Forb	FORKED ASTER			X			
2	Aster lateriflorus	P-Forb	SIDE-FLOWERING ASTER		X	X	X		X
4	Aster novae-angliae	P-Forb	NEW ENGLAND ASTER	X					
0	Aster pilosus	P-Forb	HAIRY ASTER	X				X	
4	Aster praealtus	P-Forb	WILLOW ASTER	X					X
4	Aster sagittifolius	P-Forb	ARROW-LEAVED ASTER		X	X			
3	Aster simplex	P-Forb	PANICLED ASTER				X		X
8	Aster umbellatus	P-Forb	FLAT-TOP ASTER						X
3	Aster vimineus	P-Forb	SMALL WHITE ASTER						X
7	Astragalus canadensis	P-Forb	CANADIAN MILK VETCH			X			
6	Athyrium angustum	Fern	LADY FERN						X
6	Baptisia lactea	P-Forb	WHITE WILD INDIGO	X	X				
9	Baptisia leucophaea	P-Forb	CREAM WILD INDIGO	X					
0	BARBAREA VULGARIS	B-Forb	WINTER CRESS	X			X		X
4	Betula nigra	Tree	RIVER BIRCH						X
0	BETULA POPULIFOLIA	Tree	GRAY BIRCH						X
1	Bidens aristosa	A-Forb	SWAMP MARIGOLD	X			X		X
1	Bidens aristosa v. retrorsa	A-Forb	BUR MARIGOLD						X
2	Bidens cernua	A-Forb	NODDING BUR MARIGOLD				X		X

Appendix 3 continued

				Prairie	Forest			Cultural	Wetland
C	SCIENTIFIC NAME	Physiog.	COMMON NAME	Prairie (all classes)	Dry-mesic Sand	Mesic Upland	Mesic/Wet-mesic Floodplain	Cropland, Pature & Hayland, Non-ntaive Grassland, Forbland, Shrubland	Wetland Community(ies)
2	Bidens connata	A-Forb	PURPLESTEMMED TICKSEED				X		X
1	Bidens frondosa	A-Forb	COMMON BEGGAR'S TICKS				X		X
3	Boehmeria cylindrica	P-Forb	FALSE NETTLE				X		X
5	Boltonia asteroides	P-Forb	FALSE ASTER	X					X
4	Botrychium virginianum	Fern	RATTLESNAKE FERN		X	X	X		
0	BROMUS INERMIS	P-Grass	HUNGARIAN BROME	X				X	
5	Bromus pubescens	P-Grass	WOODLAND BROME		X	X			
0	BROMUS TECTORUM	A-Grass	CHEAT GRASS	X				X	
10	Cacalia suaveolens	P-Forb	SWEET INDIAN PLANTAIN			X	X		
3	Calamagrostis canadensis	P-Grass	BLUE JOINT GRASS	X					X
1	Calystegia sepium	P-Forb	AMERICAN BINDWEED	X			X	X	X
4	Campanula americana	A-Forb	AMERICAN BELLFLOWER		X	X	X		
8	Campanula aparinoides	P-Forb	MARSH BELLFLOWER						X
2	Cardamine parviflora v. arenicola	A-Forb	SMALL-FLOWERED BITTER CRESS						X
3	Cardamine pensylvanica	B-Forb	BITTER CRESS						X
4	Carex aggregata	P-Sedge	SMOOTH CLUSTERED SEDGE	X					
3	Carex annectens	P-Sedge	LARGE YELLOW FOX SEDGE	X					X
5	Carex artitecta	P-Sedge	BLUNT-SCALED OAK SEDGE		X				
8	Carex bicknellii	P-Sedge	BICKNELL'S SEDGE	X					
2	Carex blanda	P-Sedge	COMMON WOOD SEDGE		X	X	X		
4	Carex brevior	P-Sedge	PLAINS OVAL SEDGE	X					
9	Carex buxbaumii	P-Sedge	DARK-SCALED SEDGE						X
3	Carex cephalophora	P-Sedge	SHORT-HEADED BRACTED SEDGE		X	X			
6	Carex comosa	P-Sedge	BRISTLY SEDGE						X
5	Carex conjuncta	P-Sedge	GREEN-HEADED FOX SEDGE				X		X
10	Carex conoidea	P-Sedge	PRAIRIE GRAY SEDGE						X
3	Carex cristatella	P-Sedge	CRESTED OVAL SEDGE						X
3	Carex davisii	P-Sedge	AWNED GRACEFUL SEDGE			X	X		
7	Carex foenea	P-Sedge	RUNNING SAVANNA SEDGE		X				
4	Carex frankii	P-Sedge	BRISTLY CATTAIL SEDGE						X
2	Carex granularis	P-Sedge	PALE SEDGE	X					X
4	Carex gravida	P-Sedge	LONG-AWNED BRACTED SEDGE	X					
6	Carex grayi	P-Sedge	COMMON BUR SEDGE				X		
3	Carex grisea	P-Sedge	WOOD GRAY SEDGE			X	X		
7	Carex haydenii	P-Sedge	LONG-SCALED TUSSOCK SEDGE						X
4	Carex lanuginosa	P-Sedge	WOOLY SEDGE	X					X
2	Carex leavenworthii	P-Sedge	DWARF BRACTED SEDGE					X	
8	Carex longii	P-Sedge	ROUND-SHOULDERED OVAL SEDGE	X					
2	Carex molesta	P-Sedge	FIELD OVAL SEDGE	X	X	X			
4	Carex normalis	P-Sedge	SPREADING OVAL SEDGE						X
5	Carex pensylvanica	P-Sedge	PENNSYLVANIA OAK SEDGE	X	X	X			
10	Carex richii	P-Sedge	AWNED OVAL SEDGE						X

Appendix 3 continued

				Prairie	Forest			Cultural	Wetland
C	SCIENTIFIC NAME	Physiog.	COMMON NAME	Prairie (all classes)	Dry-mesic Sand	Mesic Upland	Mesic/Wet-mesic Floodplain	Cropland, Pature & Hayland, Non-ntaive Grassland, Forbland, Shrubland	Wetland Community(ies)
5	Carex rosea	P-Sedge	CURLY-STYLED WOOD SEDGE			X			
5	Carex sartwellii	P-Sedge	RUNNING MARSH SEDGE	X					X
5	Carex scoparia	P-Sedge	LANCE-FRUITED OVAL SEDGE	X					X
4	Carex sparganioides	P-Sedge	LOOSE-HEADED BRACTED SEDGE			X			
2	Carex stipata	P-Sedge	COMMON FOX SEDGE				X		X
5	Carex stricta	P-Sedge	COMMON TUSSOCK SEDGE	X			X		X
7	Carex suberecta	P-Sedge	WEDGE-FRUITED OVAL SEDGE					X	
8	Carex swanii	P-Sedge	DOWNY GREEN SEDGE	X	X	X			
3	Carex tribuloides	P-Sedge	AWL-FRUITED OVAL SEDGE						X
6	Carex trichocarpa	P-Sedge	HAIRY-FRUITED LAKE SEDGE						X
6	Carex umbellata	P-Sedge	EARLY OAK SEDGE		X				
3	Carex vulpinoidea	P-Sedge	BROWN FOX SEDGE	X					X
4	Carya cordiformis	Tree	BITTERNUT HICKORY			X	X		
4	Carya ovata	Tree	SHAGBARK HICKORY		X	X			
1	Cassia fasciculata	A-Forb	GOLDEN CASSIA	X					
0	CATALPA SPECIOSA	Tree	COMMON CATALPA	X	X			X	
0	CELASTRUS ORBICULATUS	W-Vine	ORIENTAL BITTERSWEET		X				
2	Celastrus scandens	W-Vine	CLIMBING BITTERSWEET			X			
3	Celtis occidentalis	Tree	HACKBERRY		X	X	X		
0	CENTAUREA MACULOSA	B-Forb	SPOTTED CENTAUREA					X	
0	CENTAURIUM PULCHELLUM	A-Forb	SHOWY CENTAURY					X	
4	Cephalanthus occidentalis	Shrub	BUTTONBUSH						X
4	Cerastium arvense	P-Forb	FIELD CHICKWEED		X	X			
3	Ceratophyllum demersum	P-Forb	COONTAIL						X
3	Cercis canadensis	Tree	EASTERN REDBUD		X		X		
1	Chaerophyllum procumbens	A-Forb	STREAMBANK CHERVIL				X		
0	CHENOPODIUM AMBROSIOIDES	A-Forb	AMERICAN WORMSEED				X		
0	CHENOPODIUM GLAUCUM	A-Forb	OAK-LEAVED GOOSEFOOT				X		
0	CICHORIUM INTYBUS	P-Forb	CHICKORY	X				X	
9	Cicuta bulbifera	P-Forb	BULBLET-BEARING WATER HEMLOCK						X
4	Cicuta maculata	B-Forb	WATER HEMLOCK	X			X		X
5	Cinna arundinacea	P-Grass	COMMON WOOD REED			X	X		X
2	Circaea lutetiana v. canadensis	P-Forb	ENCHANTER'S NIGHTSHADE		X	X	X		
0	CIRSIUM ARVENSE	P-Forb	FIELD THISTLE					X	X
3	Cirsium discolor	B-Forb	PASTURE THISTLE	X				X	
0	CIRSIUM VULGARE	B-Forb	BULL THISTLE	X				X	
1	Claytonia virginica	P-Forb	SPRING BEAUTY	X	X	X	X		X
4	Clematis pitcheri	W-Vine	LEATHER FLOWER			X	X		
6	Comandra umbellata	P-Forb	BASTARD TOAD-FLAX	X					
0	COMMELINA COMMUNIS	A-Forb	COMMON DAY FLOWER				X	X	
0	CONIUM MACULATUM	B-Forb	POISON HEMLOCK					X	
0	CONVALLARIA MAJALIS	P-Forb	LILY-OF-THE-VALLEY		X				

Appendix 3 continued

				Prairie	Forest			Cultural	Wetland
C	SCIENTIFIC NAME	Physiog.	COMMON NAME	Prairie (all classes)	Dry-mesic Sand	Mesic Upland	Mesic/Wet-mesic Floodplain	Cropland, Pature & Hayland, Non-ntaive Grassland, Forbland, Shrubland	Wetland Community(ies)
0	Conyza canadensis	A-Forb	HORSEWEED	X				X	
6	Coreopsis palmata	P-Forb	PRAIRIE COREOPSIS	X					
4	Coreopsis tripteris	P-Forb	TALL COREOPSIS	X					
2	Cornus drummondii	Shrub	ROUGH-LEAVED DOGWOOD				X	X	
4	Cornus obliqua	Shrub	PALE DOGWOOD	X			X		X
2	Cornus racemosa	Shrub	GRAY DOGWOOD	X	X	X			
4	Cornus stolonifera	Shrub	RED OSIER DOGWOOD			X	X		X
0	CORONILLA VARIA	P-Forb	CROWN VETCH	X				X	
4	Corylus americana	Shrub	AMERICAN FILBERT			X	X		
2	Crataegus crus-galli	Tree	COCK-SPUR HAWTHORN	X				X	
2	Crataegus mollis	Tree	DOWNY HAWTHORN	X			X		
1	Croton glandulosus v. septentrionalis	A-Forb	SAND CROTON	X					
1	Cryptotaenia canadensis	P-Forb	HONEWORT			X	X		
2	Cuscuta gronovii	A-Forb	COMMON DODDER				X		X
2	Cyperus aristatus	A-Sedge	AWNED FLAT SEDGE				X		
1	Cyperus erythrorhizos	A-Sedge	RED-ROOTED NUT SEDGE				X		X
0	Cyperus esculentus	P-Sedge	FIELD NUT SEDGE				X		
5	Cyperus filiculmis	P-Sedge	SLENDER SAND SEDGE	X					
0	Cyperus strigosus	P-Sedge	LONGL-SCALED NUT SEDGE				X		X
4	Cyperus X mesochorus	P-Sedge	MIDLAND SAND SEDGE	X					
4	Cystopteris protrusa	Fern	HYBRID FRAGILE FERN			X			
0	DACTYLIS GLOMERATA	P-Grass	ORCHARD GRASS	X		X		X	
9	Dalea candida	P-Forb	WHITE PRAIRIE CLOVER	X					
8	Dalea purpurea	P-Forb	PURPLE PRAIRIE CLOVER	X					
3	Danthonia spicata	P-Grass	POVERTY OAT GRASS	X	X	X			
0	DAUCUS CAROTA	B-Forb	QUEEN ANNE'S LACE	X				X	
4	Dentaria laciniata	P-Forb	TOOTHWORT			X			
4	Desmanthus illinoensis	P-Forb	ILLINOIS BUNDLE FLOWER	X					
5	Desmodium canadense	P-Forb	SHOWY TICK TREFOIL	X					
3	Desmodium glutinosum	P-Forb	POINTED TICK TREFOIL			X			
6	Desmodium sessilifolium	P-Forb	SESSILE-LEAVED TICKTREFOIL	X					
0	DIANTHUS ARMERIA	A-Forb	DEPTFORD PINK	X					
5	Dicentra cucullaria	P-Forb	DUTCHMAN'S BREECHES			X			
4	Dioscorea villosa	H-Vine	WILD YAM			X			
0	DIPSACUS LACINIATUS	B-Forb	CUT-LEAVED TEASEL	X				X	X
0	DIPSACUS SYLVESTRIS	B-Forb	COMMON TEASEL						X
6	Dodecatheon meadia	P-Forb	SHOOTING STAR	X					
6	Dryopteris carthusiana	Fern	SPINULOSE WOOD FERN						X
8	Dryopteris cristata	Fern	CRESTED WOOD FERN						X
0	DUCHESNEA INDICA	P-Forb	INDIAN STRAWBERRY		X				
0	ECHINOCHLOA CRUSGALLI	A-Grass	BARNYARD GRASS				X		
0	ECHINOPS SPHAEROCEPHALUS	P-Forb	GLOBE THISTLE	X					
2	Ecipta prostrata	P-Forb	YERBA DE TAJO				X		X

Appendix 3 continued

				Prairie	Forest			Cultural	Wetland
C	SCIENTIFIC NAME	Physiog.	COMMON NAME	Prairie (all classes)	Dry-mesic Sand	Mesic Upland	Mesic/Wet-mesic Floodplain	Cropland, Pature & Hayland, Non-ntaive Grassland, Forbland, Shrubland	Wetland Community(ies)
0	ELAEAGNUS UMBELLATA	Shrub	AUTUMN OLIVE	X	X	X		X	X
3	Eleocharis acicularis	P-Sedge	NEEDLE SPIKE RUSH				X		X
3	Eleocharis erythropoda	P-Sedge	RED-ROOTED SPIKE RUSH	X					X
2	Eleocharis obtusa	A-Sedge	BLUNT SPIKE RUSH				X		X
1	Ellisia nyctelea	A-Forb	AUNT LUCY			X	X		
5	Elodea canadensis	P-Forb	COMMON WATERWEED						X
4	Elymus canadensis	P-Grass	CANADA WILD RYE	X					
5	Elymus hystrix	P-Grass	BOTTLEBRUSH GRASS		X	X			
4	Elymus villosus	P-Grass	SILKY WILD RYE		X	X			
4	Elymus virginicus	P-Grass	VIRGINIA WILD RYE		X	X	X		
3	Epilobium coloratum	P-Forb	CINNAMON WILLOW HERB	X			X		X
0	Equisetum arvense	Fern	COMMON HORSETAIL	X			X		X
2	Equisetum hyemale affine	Fern	TALL SCOURING RUSH				X		
4	Equisetum laevigatum	Fern	SMOOTH SCOURING RUSH	X					X
5	Eragrostis hypnoides	A-Grass	CREEPING LOVE GRASS				X		
0	Eragrostis pectinacea	A-Grass	SMALL LOVE GRASS				X		
3	Eragrostis spectabilis	P-Grass	PURPLE LOVE GRASS	X					
2	Erechtites hieracifolia	A-Forb	FIREWEED		X				X
1	Erigeron annuus	B-Forb	ANNUAL FLEABANE				X		X
3	Erigeron philadelphicus	P-Forb	MARSH FLEABANE			X	X		
2	Erigeron strigosus	P-Forb	DAISY FLEABANE	X					
7	Eryngium yuccifolium	P-Forb	RATTLESNAKE MASTER	X					
4	Erythronium albidum	P-Forb	WHITE ADDER'S TONGUE			X			
5	Euonymus atropurpureus	Shrub	WAHOO			X			
2	Eupatorium altissimum	P-Forb	TALL BONESET	X				X	
5	Eupatorium maculatum	P-Forb	SPOTTED JOE PYE WEED						X
4	Eupatorium perfoliatum	P-Forb	COMMON BONESET						X
5	Eupatorium purpureum	P-Forb	PURPLE JOE PYE WEED			X			
2	Eupatorium rugosum	P-Forb	WHITE SNAKEROOT		X	X	X		
1	Eupatorium serotinum	P-Forb	LATE BONESET	X			X		X
3	Euphorbia corollata	P-Forb	FLOWERING SPURGE	X	X	X			
3	Euthamia graminifolia	P-Forb	GRASS-LEAVED GOLDENROD	X					X
5	Euthamia gymnospermoides	P-Forb	VISCID GRASS-LEAVED GOLDENROD	X					
0	FESTUCA ARUNDINACEA	P-Grass	TALL FESCUE	X				X	X
5	Festuca obtusa	P-Grass	NODDING FESCUE		X	X	X		
2	Fragaria virginiana	P-Forb	WILD STRAWBERRY	X	X				
4	Fraxinus americana	Tree	WHITE ASH		X	X			
2	Fraxinus pennsylvanica v. subintegerrima	Tree	GREEN ASH	X		X	X	X	X
6	Fraxinus quadrangulata	Tree	BLUE ASH			X	X		
0	Galium aparine	A-Forb	ANNUAL BEDSTRAW		X	X	X		X
4	Galium circaezans	P-Forb	WILD LICORICE		X	X			
4	Galium concinnum	P-Forb	SHINING BEDSTRAW		X	X			
5	Galium obtusum	P-Forb	WILD MADDER	X					X
4	Galium triflorum	P-Forb	SWEET-SCENTED BEDSTRAW		X	X	X		

Appendix 3 continued

				Prairie	Forest			Cultural	Wetland
C	SCIENTIFIC NAME	Physiog.	COMMON NAME	Prairie (all classes)	Dry-mesic Sand	Mesic Upland	Mesic/Wet-mesic Floodplain	Cropland, Pature & Hayland, Non-ntaive Grassland, Forbland, Shrubland	Wetland Community(ies)
8	Gaylussacia baccata	Shrub	BLACK HUCKLEBERRY		X				
7	Gentiana andrewsii	P-Forb	CLOSED GENTIAN	X					
7	Gentianella quinquefolia v. occidentalis	A-Forb	STIFF GENTIAN	X					
2	Geranium carolinianum	A-Forb	CAROLINA CRANESBILL					X	
4	Geranium maculatum	P-Forb	WILD GERANIUM		X	X			
2	Geum canadense	P-Forb	WHITE AVENS		X	X	X		
2	Geum laciniatum	P-Forb	ROUGH AVENS	X					X
0	GLECHOMA HEDERACEA	P-Forb	GROUND IVY				X		
2	Gleditsia triacanthos	Tree	HONEY LOCUST		X	X	X		
4	Glyceria striata	P-Grass	FOWL MANNA GRASS				X		X
2	Gnaphalium obtusifolium	B-Forb	OLD-FIELD BALSAM	X					
1	Hackelia virginiana	P-Forb	STICKSEED		X	X	X	X	
3	Helenium autumnale	P-Forb	SNEEZEWEED	X		X	X		X
7	Helianthemum canadense	P-Forb	COMMON ROCKROSE	X					
5	Helianthus divaricatus	P-Forb	WOODLAND SUNFLOWER		X	X			
2	Helianthus grosseserratus	P-Forb	SAWTOOTH SUNFLOWER	X				X	X
7	Helianthus mollis	P-Forb	DOWNY SUNFLOWER	X					
6	Helianthus rigidus	P-Forb	PRAIRIE SUNFLOWER	X					
3	Helianthus strumosus	P-Forb	PALE-LEAVED SUNFLOWER			X			
3	Helianthus tuberosus	P-Forb	JERUSALEM ARTICHOKE				X		
0	HEMEROCALLIS FULVA	P-Forb	ORANGE DAY LILY		X				
7	Hepatica nobilis v. acuta	P-Forb	SHARP-LOBED HEPATICA		X	X			
0	HESPERIS MATRONALIS	P-Forb	DAME'S ROCKET			X	X		
7	Heuchera richardsonii v. grayana	P-Forb	PRAIRIE ALUMROOT					X	
4	Hibiscus laevis	P-Forb	HALBERD-LEAVED ROSE MALLOW				X		
5	Hieracium gronovii	P-Forb	HAIRY HAWKWEED	X					
0	HORDEUM JUBATUM	P-Grass	SQUIRREL-TAIL GRASS	X					X
2	Humulus lupulus	H-Vine	COMMON HOPS				X		
5	Hydrophyllum virginianum	P-Forb	VIRGINIA WATERLEAF		X	X	X		
5	Hypericum mutilum	P-Forb	DWARF ST. JOHN'S WORT						X
3	Hypericum punctatum	P-Forb	SPOTTED ST. JOHN'S WORT				X		
5	Hypericum sphaerocarpum	P-Forb	ROUND-FRUITED ST. JOHN'S WORT	X					
6	Hypoxis hirsuta	P-Forb	YELLOW STAR GRASS		X			X	
9	Ilex verticillata	Shrub	WINTERBERRY						X
2	Impatiens capensis	A-Forb	SPOTTED TOUCH-ME-NOT			X	X		X
4	Impatiens pallida	A-Forb	PALE TOUCH-ME-NOT			X	X		
6	Iodanthus pinnatifidus	P-Forb	VIOLET CRESS				X		
0	IRIS PSEUDACORUS	P-Forb	TALL YELLOW IRIS				X		
5	Iris shrevei	P-Forb	SOUTHERN BLUE FLAG				X		X
4	Juglans nigra	Tree	BLACK WALNUT		X	X	X		
4	Juncus acuminatus	P-Forb	SHARP-FRUITED RUSH						X
4	Juncus dudleyi	P-Forb	DUDLEY'S RUSH	X					X
4	Juncus effusus var. solutus	P-Forb	COMMON RUSH	X					X

Appendix 3 continued

				Prairie	Forest			Cultural	Wetland
C	SCIENTIFIC NAME	Physiog.	COMMON NAME	Prairie (all classes)	Dry-mesic Sand	Mesic Upland	Mesic/Wet-mesic Floodplain	Cropland, Pature & Hayland, Non-ntaive Grassland, Forbland, Shrubland	Wetland Community(ies)
3	Juncus interior	P-Forb	INLAND RUSH	X					X
5	Juncus marginatus	P-Forb	GRASS-LEAVED RUSH						X
6	Juncus nodosus	P-Forb	JOINT RUSH	X					X
0	Juncus tenuis	P-Forb	PATH RUSH				X	X	X
3	Juncus torreyi	P-Forb	TORREY'S RUSH	X					X
1	Juniperus virginiana	Tree	EASTERN RED CEDAR	X	X			X	
6	Justicia americana	P-Forb	WATER WILLOW				X		
5	Krigia biflora	P-Forb	FALSE DANDELOIN	X	X				
4	Krigia virginica	A-Forb	DWARF DANDELION	X	X				
1	Lactuca canadensis	B-Forb	WILD LETTUCE	X					
4	Lactuca floridana	B-Forb	BLUE LETTUCE		X	X	X		
0	LACTUCA SERRIOLA	B-Forb	PRICKLY LETTUCE					X	
2	Laportea canadensis	P-Forb	CANADA WOOD NETTLE			X	X		X
7	Lathyrus palustris	P-Forb	MARSH VETCHLING	X					X
6	Lechea tenuifolia	P-Forb	NARROW-LEAVED PINWEED	X					
3	Leersia oryzoides	P-Grass	RICE CUT GRASS				X		X
4	Leersia virginica	P-Grass	WHITE GRASS		X	X	X		X
3	Lemna minor	A-Forb	SMALL DUCKWEED				X		X
0	Lepidium virginicum	A-Forb	COMMON PEPPERGRASS	X			X		
4	Leptoloma cognatum	P-Grass	FALL WITCH GRASS	X					
4	Lespedeza capitata	P-Forb	ROUND-HEADED BUSH CLOVER	X					
0	LEUCANTHEMUM VULGARE	P-Forb	OX-EYE DAISY	X				X	
3	Leucospora multifida	A-Forb	OBE-WAN-CONOBEA				X		X
7	Liatris aspera	P-Forb	ROUGH BLAZING STAR	X					
6	Liatris pycnostachya	P-Forb	PRAIRIE BLAZINE STAR	X					
7	Liatris spicata	P-Forb	MARSH BLAZING STAR	X					
6	Lilium michiganense	P-Forb	MICHIGAN LILY	X					
4	Linaria canadensis	A-Forb	BLUE TOADFLAX	X					
5	Lindernia dubia	A-Forb	FALSE PIMPERNEL				X		
4	Liparis liliifolia	P-Forb	PURPLE TWAYBLADE					X	
8	Liparis loeselii	P-Forb	GREEN TWAYBLADE						X
6	Lithospermum canescens	P-Forb	HOARY PUCCOON	X					
7	Lithospermum caroliniense	P-Forb	HAIRY PUCCOON	X					
6	Lobelia cardinalis	P-Forb	CARDINAL FLOWER				X		X
4	Lobelia siphilitica	P-Forb	GREAT BLUE LOBELIA				X		X
4	Lobelia spicata	P-Forb	PALE SPIKED LOBELIA	X					
0	LONICERA MAACKII	Shrub	AMUR HONEYSUCKLE	X	X	X	X	X	X
5	Lonicera prolifera	W-Vine	GRAPE HONEYSUCKLE		X	X			
0	LONICERA X BELLA	Shrub	SHOWY FLY HONEYSUCKLE	X	X	X	X	X	X
5	Ludwigia alternifolia	P-Forb	SEEDBOX	X					X
4	Ludwigia palustris v. americana	P-Forb	MARSH PURSLANE				X		X
5	Luzula multiflora	P-Forb	COMMON WOOD RUSH		X				
3	Lycopus americanus	P-Forb	COMMON WATER HOREHOUND				X		

Appendix 3 continued

				Prairie	Forest			Cultural	Wetland
C	SCIENTIFIC NAME	Physiog.	COMMON NAME	Prairie (all classes)	Dry-mesic Sand	Mesic Upland	Mesic/Wet-mesic Floodplain	Cropland, Pature & Hayland, Non-ntaive Grassland, Forbland, Shrubland	Wetland Community(ies)
7	Lycopus uniflorus	P-Forb	NOTHERN BUGLE WEED						X
5	Lycopus virginicus	P-Forb	BUGLE WEED				X		X
4	Lysimachia ciliata	P-Forb	FRINGED LOOSESTRIFE				X		X
6	Lysimachia lanceolata	P-Forb	LANCE-LEAVED LOOSESTRIFE	X					X
0	LYSIMACHIA NUMMULARIA	P-Forb	MONEYWORT				X		X
8	Lysimachia quadriflora	P-Forb	NARROW-LEAVED LOOSESTRIFE	X					
7	Lysimachia thyrsiflora	P-Forb	TUFTED LOOSESTRIFE						X
5	Lythrum alatum	P-Forb	WINGED LOOSESTRIFE	X			X		X
0	LYTHRUM SALICARIA	P-Forb	PURPLE LOOSESTRIFE				X		X
0	MACLURA POMIFERA	Tree	HEDGE APPLE		X		X	X	
0	MALUS PUMILA	Tree	APPLE					X	
0	MALUS SIEBOLDII	Tree	JAPANESE CRAB	X	X			X	X
9	Matteuccia struthiopteris	Fern	OSTRICH FERN			X			
0	MEDICAGO LUPULINA	A-Forb	BLACK MEDICK	X				X	
0	MELILOTUS ALBA	B-Forb	WHITE SWEET CLOVER	X				X	
0	MELILOTUS OFFICINALIS	B-Forb	YELLOW SWEET CLOVER					X	
4	Menispermum canadense	W-Vine	MOONSEED		X	X	X		
4	Mentha arvensis v. villosa	P-Forb	WILD MINT	X			X		X
0	MENTHA X PIPERITA	P-Forb	PEPPERMINT						X
5	Mimulus ringens	P-Forb	MONKEY FLOWER				X		X
7	Moehringia lateriflora	P-Forb	BLUNT-LEAF SANDWORT		X	X			
0	MOLLUGO VERTICILLATA	A-Forb	CARPET WEED				X		
4	Monarda fistulosa	P-Forb	WILD BERGAMOT	X					
0	MORUS ALBA	Tree	WHITE MULBERRY	X	X		X	X	
4	Morus rubra	Tree	RED MULBERRY			X			
0	MUHLENBERGIA ASPERIFOLIA	P-Grass	SCRATCH GRASS	X					
3	Muhlenbergia frondosa	P-Grass	COMMON SATIN GRASS						X
0	MYOSOTON AQUATICUM	P-Forb	GIANT CHICKWEED				X		X
6	Myriophyllum exalbescens	P-Forb	SPIKED WATER MILFOIL						X
5	Najas flexilis	A-Forb	COMMON NAIAD						X
0	NASTURTIUM OFFICINALE	P-Forb	WATER CRESS				X		X
0	NEPETA CATARIA	P-Forb	CATNIP					X	
1	Oenothera biennis	B-Forb	COMMON EVENING PRIMROSE	X				X	
2	Oenothera laciniata	A-Forb	RAGGED EVENING PRIMROSE					X	
6	Oenothera pilosella	P-Forb	PRAIRIE SUNDROPS	X					
5	Oenothera rhombipetala	B-Forb	SAND PRIMROSE	X					
5	Onoclea sensibilis	Fern	SENSITIVE FERN			X			X
5	Opuntia humifusa	Shrub	EASTERN PRICKLY-PEAR	X					
3	Osmorhiza claytonii	P-Forb	HAIRY SWEET CICELY		X				
3	Osmorhiza longistylis	P-Forb	ANISE ROOT		X	X	X		
9	Osmunda claytoniana	Fern	INTERRUPTED FERN	X					X
8	Osmunda regalis v. spectabilis	Fern	REGAL FERN	X					X
4	Ostrya virginiana	Tree	HOP HORNBEAM		X	X			

Appendix 3 continued

				Prairie	Forest			Cultural	Wetland
C	SCIENTIFIC NAME	Physiog.	COMMON NAME	Prairie (all classes)	Dry-mesic Sand	Mesic Upland	Mesic/Wet-mesic Floodplain	Cropland, Pature & Hayland, Non-ntaive Grassland, Forbland, Shrubland	Wetland Community(ies)
0	Oxalis dillenii	P-Forb	COMMON WOOD SORREL	X			X	X	
0	Oxalis stricta	P-Forb	TALL WOOD SORREL		X	X	X		
5	Oxalis violacea	P-Forb	VIOLET WOOD SORREL	X					
7	Oxypolis rigidior	P-Forb	COWBANE	X					X
0	Panicum capillare	A-Grass	OLD WITCH GRASS				X		
4	Panicum clandestinum	P-Grass	DEER-TONGUE GRASS				X	X	X
0	Panicum dichotomiflorum	A-Grass	FALL PANICUM	X				X	X
2	Panicum implicatum	P-Grass	OLD FIELD PANIC GRASS	X	X			X	
5	Panicum latifolium	P-Grass	BROAD-LEAVED PANIC GRASS		X	X			
3	Panicum oligosanthes v. scribnerianum	P-Grass	SCRIBNER'S PANIC GRASS	X					
6	Panicum rigidulum	P-Grass	MUNRO GRASS						X
5	Panicum villosissimum	P-Grass	WHITE-HAIRED PANIC GRASS	X					
4	Panicum virgatum	P-Grass	PRAIRIE SWITCH GRASS	X					
5	Paronychia canadensis	A-Forb	TALL FORKED CHICKWEED		X				
8	Parthenium integrifolium	P-Forb	WILD QUININE	X					
2	Parthenocissus quinquefolia	W-Vine	VIRGINIA CREEPER	X	X	X	X	X	X
2	Paspalum laeve	P-Grass	SMOOTH LENS GRASS	X					
0	PASTINACA SATIVA	B-Forb	WILD PARSNIP	X				X	
3	Penstemon calycosus	P-Forb	SMOOTH BEARD TONGUE		X	X			
6	Penstemon pallidus	P-Forb	PALE BEARD TONGUE	X					
2	Penthorum sedoides	P-Forb	DITCH STONECROP				X		X
6	Perideridia americana	P-Forb	THICKET PARSLEY			X	X		
0	PHALARIS ARUNDINACEA	P-Grass	REED CANARY GRASS	X		X	X	X	X
0	PHLEUM PRATENSE	P-Grass	TIMOTHY					X	
7	Phlox bifida	P-Forb	CLEFF PHLOX		X				
5	Phlox divaricata	P-Forb	BLUE PHLOX		X	X	X		
6	Phlox glaberrima sp. interior	P-Forb	SMOOTH PHLOX	X					X
7	Phlox pilosa	P-Forb	SAND PRAIRIE PHLOX	X					
1	Phragmites australis	P-Grass	COMMON REED					X	X
4	Phryma leptostachya	P-Forb	LOPSEED		X	X	X		
1	Phyla lanceolata	P-Forb	FOG FRUIT				X		X
2	Physalis heterophylla	P-Forb	CLAMMY GROUND CHERRY		X	X			
0	Physalis subglabrata	P-Forb	SMOOTH GROUND CHERRY					X	
3	Physalis virginiana	P-Forb	LANCE-LEAVED GROUND CHERRY					X	
7	Physocarpus opulifolius	Shrub	COMMON NINEBARK			X	X		
6	Physostegia virginiana	P-Forb	OBEDIENT PLANT			X	X		
1	Phytolacca americana	P-Forb	POKEWEED		X	X	X	X	
3	Pilea pumila	A-Forb	CANADA CLEARWEED				X		
0	PINUS SYLVESTRIS	Tree	SCOTCH PINE	X				X	
1	Plantago aristata	A-Forb	POOR JOE	X					
0	PLANTAGO LANCEOLATA	P-Forb	ENGLISH PLANTAIN	X				X	
0	Plantago rugelii	A-Forb	RED-STALKED PLANTAIN				X	X	X
9	Platanthera cf. lacera (sterile)	P-Forb	GREEN FRINGED ORCHID					X	

Appendix 3 continued

				Prairie	Forest			Cultural	Wetland
C	SCIENTIFIC NAME	Physiog.	COMMON NAME	Prairie (all classes)	Dry-mesic Sand	Mesic Upland	Mesic/Wet-mesic Floodplain	Cropland, Pature & Hayland, Non-ntaive Grassland, Forbland, Shrubland	Wetland Community(ies)
3	Platanus occidentalis	Tree	BUTTONWOOD				X		X
0	POA COMPRESSA	P-Grass	CANADIAN BLUE GRASS	X				X	
0	POA PRATENSIS	P-Grass	KENTUCKY BLUE GRASS	X				X	
4	Podophyllum peltatum	P-Forb	MAY APPLE		X	X	X		
0	Poinsettia dentata	A-Forb	TOOTHED SPURGE				X		
5	Polemonium reptans	P-Forb	JACOB'S LADDER			X			
7	Polygala polygama v. obtusata	B-Forb	PURPLE MILKWORT	X					
5	Polygala sanguinea	A-Forb	FIELD MILKWORT	X					
4	Polygonatum commutatum	P-Forb	GREAT SOLOMON SEAL		X	X	X		
3	Polygonum amphibium	P-Forb	WATER KNOTWEED	X					X
0	POLYGONUM HYDROPIPER	A-Forb	WATER PEPPER				X		X
4	Polygonum hydropiperoides	P-Forb	MILD WATER PEPPER				X		X
0	Polygonum lapathifolium	A-Forb	CURTTOP LADY'S THUMB				X		X
1	Polygonum pensylvanicum	A-Forb	PINKWEED				X		X
0	POLYGONUM PERSICARIA	A-Forb	LADY'S THUMB				X		X
3	Polygonum punctatum	A-Forb	SMARTWEED				X		X
2	Polygonum scandens	H-Vine	CLIMBING FALSE BUCKWHEAT		X		X		
3	Polygonum virginianum	P-Forb	VIRGINIA KNOTWEED		X	X	X		
2	Populus deltoides	Tree	EASTERN COTTONWOOD	X		X	X		X
4	Populus grandidentata	Tree	BIG-TOOTH ASPEN						X
0	PORTULACA OLERACEA	A-Forb	PURSLANE				X	X	
0	POTAMOGETON CRISPUS	P-Forb	BEGINNER'S PONDWEED						X
5	Potamogeton pectinatus	P-Forb	COMB PONDWEED						X
7	Potamogeton pusillus	P-Forb	BABY PONDWEED						X
0	Potentilla norvegica	A-Forb	ROUGH CINQUEFOIL				X		X
0	POTENTILLA RECTA	P-Forb	SULFUR CINQUEFOIL	X					
3	Potentilla simplex	P-Forb	COMMON CINQUEFOIL	X	X	X			
5	Prenanthes alba	P-Forb	LION'S FOOT			X			
8	Prenanthes aspera	P-Forb	ROUGH WHITE LETTUCE	X					
8	Prenanthes racemosa	P-Forb	GLAUCOUS WHITE LETTUCE	X					
5	Proserpinaca palustris	P-Forb	MERMAID WEED						X
1	Prunella vulgaris v. elongata	P-Forb	SELF-HEAL	X			X	X	
1	Prunus serotina	Tree	WILD BLACK CHERRY	X	X	X	X	X	
3	Prunus virginiana	Shrub	COMMON CHOKE CHERRY	X	X	X	X		
6	Psoralea onobrychis	P-Forb	FRENCH GRASS		X	X			
8	Psoralea tenuiflora	P-Forb	SCURFY-PEA	X					
4	Ptelea trifoliata	Shrub	WAFER ASH	X		X	X		
5	Pteridium aquilinum	Fern	BRACKEN FERN		X				
4	Pycnanthemum tenuifolium	P-Forb	SLENDER MOUNTAIN MINT	X					
5	Pycnanthemum virginianum	P-Forb	COMMON MOUNTAIN MINT	X					
5	Quercus alba	Tree	WHITE OAK		X	X			
5	Quercus macrocarpa	Tree	BURR OAK		X	X	X		

Appendix 3 continued

				Prairie	Forest			Cultural	Wetland
C	SCIENTIFIC NAME	Physiog.	COMMON NAME	Prairie (all classes)	Dry-mesic Sand	Mesic Upland	Mesic/Wet-mesic Floodplain	Cropland, Pature & Hayland, Non-ntaive Grassland, Forbland, Shrubland	Wetland Community(ies)
5	Quercus rubra	Tree	NORTHERN RED OAK		X	X			
5	Quercus velutina	Tree	BLACK OAK		X	X			
1	Ranunculus abortivus	A-Forb	LITTLE-LEAF BUTTERCUP		X	X	X		
6	Ranunculus pusillus	A-Forb	SMALL SPEARWORT						X
3	Ranunculus sceleratus	A-Forb	CURSED CROWFOOT				X		X
4	Ranunculus septentrionalis	P-Forb	SWAMP BUTTERCUP			X	X		
4	Ratibida pinnata	P-Forb	YELLOW CONEFLOWER	X					
0	RHAMNUS CATHARTICA	Shrub	COMMON BUCKTHORN	X	X			X	X
0	RHAMNUS FRANGULA	Shrub	GLOSSY BUCKTHORN					X	X
1	Rhus glabra	Shrub	SMOOTH SUMAC	X	X	X		X	
2	Rhus typhina	Shrub	STAGHORN SUMAC					X	
10	Rhynchospora capitellata	P-Sedge	BROWN BEAK RUSH	X					
5	Ribes americanum	Shrub	WILD BLACK CURRENT						X
2	Ribes missouriense	Shrub	MISSOURI GOOSEBERRY		X	X	X		
0	ROBINIA PSEUDO-ACACIA	Tree	BLACK LOCUST	X	X			X	
4	Rorippa palustris	A-Forb	MARSH YELLOW CRESS	X			X		X
0	RORIPPA SYLVESTRIS	P-Forb	CREEPING YELLOW CRESS				X		
4	Rosa carolina	Shrub	PASTURE ROSE	X	X	X			
0	ROSA EGLANTERIA	Shrub	SWEETBRIER					X	
0	ROSA MULTIFLORA	Shrub	JAPANESE ROSE	X	X	X	X	X	X
5	Rosa setigera	Shrub	ILLINOIS ROSE	X					X
4	Rotala ramosior	A-Forb	WHEELWORT						X
2	Rubus allegheniensis	Shrub	COMMON BLACKBERRY		X	X			
2	Rubus flagellaris	Shrub	COMMON DEWBERRY	X	X	X			
8	Rubus hispidus	Shrub	SWAMPY DEWBERRY						X
2	Rubus occidentalis	Shrub	BLACK RASPBERRY		X	X	X	X	
2	Rubus pensylvanicus	Shrub	YANKEE BLACKBERRY		X	X		X	
2	Rudbeckia hirta	P-Forb	BLACK-EYED SUSAN	X					
3	Rudbeckia laciniata	P-Forb	WILD GOLDEN GLOW			X	X		
0	RUMEX ACETOSELLA	P-Forb	FIELD SORREL	X	X				
2	Rumex altissimus	P-Forb	PALE DOCK				X		X
0	RUMEX CRISPUS	P-Forb	CURLY DOCK					X	X
5	Sagittaria brevirostra	P-Forb	SHORT-BEAKED ARROWLEAF				X		X
7	Sagittaria graminea	P-Forb	GRASS-LEAVED ARROWHEAD						X
4	Sagittaria latifolia	P-Forb	COMMON ARROWHEAD				X		X
0	SALIX ALBA 'TRISTIS'	Tree	WEEPING WILLOW				X		
4	Salix amygdaloides	Tree	PEACH-LEAVED WILLOW				X		X
4	Salix discolor	Shrub	PUSSY WILLOW	X					
8	Salix eriocephala	Shrub	HEART-LEAVED WILLOW						X
1	Salix exigua	Shrub	SANDBAR WILLOW	X			X	X	X
5	Salix humilis	Shrub	PRAIRIE WILLOW	X					
3	Salix nigra	Tree	BLACK WILLOW				X		X
2	Sambucus canadensis	Shrub	COMMON ELDER		X	X	X	X	X

Appendix 3 continued

				Prairie	Forest			Cultural	Wetland
C	SCIENTIFIC NAME	Physiog.	COMMON NAME	Prairie (all classes)	Dry-mesic Sand	Mesic Upland	Mesic/Wet-mesic Floodplain	Cropland, Pature & Hayland, Non-ntaive Grassland, Forbland, Shrubland	Wetland Community(ies)
4	Sanicula canadensis	B-Forb	CANADIAN BLACK SNAKEROOT	X	X	X			
2	Sanicula gregaria	P-Forb	CLUSTERED BLACK SNAKEROOT		X	X	X	X	
0	SAPONARIA OFFICINALIS	P-Forb	BOUNCING BET	X					
2	Sassafras albidum	Tree	SASSAFRAS		X			X	
5	Saururus cernuus	P-Forb	LIZARD'S TAIL				X		X
5	Schizachyrium scoparium	P-Grass	LITTLE BLUESTEM	X					
6	Scirpus acutus	P-Sedge	HEARD-STEMMED BULRUSH				X		X
3	Scirpus americanus	P-Sedge	CHAIRMAKER'S RUSH				X		X
4	Scirpus atrovirens	P-Sedge	DARK GREEN RUSH	X			X		X
5	Scirpus cyperinus	P-Sedge	WOOL GRASS	X					
3	Scirpus fluviatilis	P-Sedge	RIVER BULRUSH				X		X
7	Scirpus heterochaetus	P-Sedge	SLENDER BULRUSH						X
7	Scirpus micranthus	A-Sedge	SMALL-FLOWERED RUSH				X		
3	Scirpus pendulus	P-Sedge	RED BULRUSH	X					
4	Scirpus tabernaemontanii	P-Sedge	GREAT BULRUSH				X		X
9	Scleria triglomerata	P-Sedge	TALL NUT GRASS	X					
5	Scrophularia lanceolata	P-Forb	EARLY FIGWORT		X	X			
4	Scrophularia marilandica	P-Forb	LATE FIGWORT		X	X			
6	Scutellaria galericulata	P-Forb	MARSH SKULLCAP						X
4	Scutellaria lateriflora	P-Forb	MAD-DOG SKULLCAP				X		X
9	Sedum ternatum	P-Forb	THREE-LEAVED STONECROP			X			
0	Senecio glabellus	A-Forb	BUTTERWEED				X		X
3	Senecio pauperculus	P-Forb	BALSAM RAGWORT	X					
0	SETARIA FABERI	A-Grass	GIANT FOXTAIL					X	
0	SETARIA GLAUCA	A-Grass	PIGEON GRASS					X	
3	Sicyos angulatus	H-Vine	BUR CUCUMBER				X		
6	Silene stellata	P-Forb	STARRY CAMPION		X	X			
5	Silphium integrifolium	P-Forb	ROSIN WEED	X					
5	Silphium laciniatum	P-Forb	COMPASS PLANT	X					
4	Silphium perfoliatum	P-Forb	CUP PLANT	X		X	X		
4	Silphium terebinthinaceum	P-Forb	PRAIRIE DOCK	X					
4	Sisyrinchium albidum	P-Forb	COMMON BLUE-EYED GRASS	X					
5	Sium suave	P-Forb	WATER PARSNIP						X
4	Smilacina racemosa	P-Forb	FEATHERY FALSE SOLOMON SEAL		X	X			
5	Smilacina stellata	P-Forb	STARRY FALSE SOLOMON SEAL	X	X	X			X
5	Smilax ecirrhata	P-Forb	UPRIGHT CARRION FLOWER		X	X			
3	Smilax hispida	W-Vine	BRISTLY GREEN BRIER		X	X	X	X	
4	Smilax lasioneuron	H-Vine	COMMON CARRION FLOWER			X	X		
0	Solanum carolinense	P-Forb	HORSE NETTLE				X	X	
0	SOLANUM DULCAMARA	W-Vine	BITTERSWEET NIGHTSHADE				X		X
0	Solanum ptycanthum	A-Forb	BLACK NIGHTSHADE				X		X
1	Solidago canadensis	P-Forb	CANADA GOLDENROD	X			X	X	

Appendix 3 continued

				Prairie	Forest			Cultural	Wetland
C	SCIENTIFIC NAME	Physiog.	COMMON NAME	Prairie (all classes)	Dry-mesic Sand	Mesic Upland	Mesic/Wet-mesic Floodplain	Cropland, Pature & Hayland, Non-ntaive Grassland, Forbland, Shrubland	Wetland Community(ies)
6	Solidago flexicaulis	P-Forb	BROAD-LEAVED GOLDENROD		X	X			
3	Solidago gigantea	P-Forb	LATE GOLDENROD	X		X	X		X
4	Solidago juncea	P-Forb	EARLY GOLDENROD	X					
3	Solidago nemoralis	P-Forb	OLD FIELD GOLDENROD	X					
7	Solidago riddellii	P-Forb	RIDDELL'S GOLDENROD	X					X
4	Solidago rigida	P-Forb	RIGID GOLDENROD	X					
7	Solidago speciosa	P-Forb	SHOWY GOLDENROD	X					
5	Solidago ulmifolia	P-Forb	ELM-LEAVED GOLDENROD		X	X			
4	Sorghastrum nutans	P-Grass	INDIAN GRASS	X					
4	Spartina pectinata	P-Grass	PRAIRIE CORD GRASS	X					X
5	Sphenopholis obtusata	P-Grass	PRAIRIE WEDGE GRASS	X					
6	Spiraea alba	Shrub	MEADOWSWEET	X					X
5	Spirodela polyrhiza	A-Forb	GREAT DUCKWEED				X		X
3	Sporobolus asper	P-Grass	ROUGH DROPSEED	X				X	
4	Sporobolus cryptandrus	P-Grass	SAND DROPSEED	X					
9	Sporobolus heterolepis	P-Grass	NORTHERN DROP SEED	X					
5	Stachys palustris	P-Forb	WOUNDWORT	X			X		X
5	Stachys tenuifolia	P-Forb	SMOOTH HEDGE NETTLE			X			
5	Staphylea trifolia	Shrub	BLADDERNUT			X			
0	STELLARIA GRAMINEA	P-Forb	STARWORT					X	
6	Stipa spartea	P-Grass	PORCUPINE GRASS	X					
3	Strophostyles helvola	A-Forb	TRAILING WILD BEAN				X		
4	Strophostyles leiosperma	A-Forb	SMALL WILD BEAN	X					
1	Symphoricarpos orbiculatus	Shrub	CORALBERRY			X			
7	Taenidia integerrima	P-Forb	YELLOW PIMPERNEL			X			
0	TARAXACUM OFFICINALE	P-Forb	COMMON DANDELION					X	
3	Teucrium canadense v. virginicum	P-Forb	AMERICAN GERMANDER		X	X	X		
5	Thalictrum revolutum	P-Forb	WAXY MEADOW RUE	X		X			
6	Thaspium trifoliatum	P-Forb	PURPLE MEADOW PARSNIP			X			
7	Thelypteris palustris v. pubescens	Fern	MARSH SHIELD FERN	X					X
0	THLASPI ARVENSE	A-Forb	FIELD PENNY CRESS					X	
5	Tilia americana	Tree	AMERICAN LINDEN		X	X			
8	Tomanthera auriculata	A-Forb	EARED FALSE FOXGLOVE						X
1	Toxicodendron radicans	W-Vine	POISON IVY	X	X	X	X	X	X
3	Tradescantia ohiensis	P-Forb	COMMON SPIDERWORT	X					
0	TRAGOPOGON PRATENSIS	B-Forb	COMMON GOAT'S BEARD	X				X	
1	Tridens flavus	P-Grass	COMMON PURPLETOP	X				X	
0	TRIFOLIUM HYBRIDUM	P-Forb	ALSIKE CLOVER	X				X	
0	TRIFOLIUM PRATENSE	P-Forb	RED CLOVER					X	
0	TRIFOLIUM REPENS	P-Forb	WHITE CLOVER					X	
5	Trillium recurvatum	P-Forb	RED TRILLIUM		X	X	X		
5	Triosteum aurantiacum	P-Forb	EARLY HORSE GENTIAN			X			
6	Triplasis purpurea	A-Grass	PURPLE SANDGRASS	X					

Appendix 3 continued

				Prairie	Forest			Cultural	Wetland
C	SCIENTIFIC NAME	Physiog.	COMMON NAME	Prairie (all classes)	Dry-mesic Sand	Mesic Upland	Mesic/Wet-mesic Floodplain	Cropland, Pature & Hayland, Non-ntaive Grassland, Forbland, Shrubland	Wetland Community(ies)
0	TYPHA ANGUSTIFOLIA	P-Forb	NARROW-LEAVED CATTAIL						X
1	Typha latifolia	P-Forb	BROAD-LEAVED CATTAIL						X
5	Ulmus americana	Tree	AMERICAN ELM		X	X	X	X	X
0	ULMUS PUMILA	Tree	SIBERIAN ELM					X	
3	Ulmus rubra	Tree	SLIPPERY ELM				X		
2	Urtica dioica	P-Forb	TALL NETTLE			X	X		X
7	Uvularia grandiflora	P-Forb	BELLWORT			X			
7	Vaccinium angustifolium	Shrub	EARLY LOW BLUEBERRY		X				
1	Valerianella radiata	A-Forb	CORN SALAD						X
7	Vallisneria americana	P-Forb	EEL GRASS						X
0	VERBASCUM THAPSUS	B-Forb	WOOLLY MULLEIN					X	
3	Verbena hastata	P-Forb	BLUE VERVAIN				X		X
2	Verbena stricta	P-Forb	HOARY VERVAIN					X	
3	Verbena urticifolia	P-Forb	WHITE VERVIAN		X	X	X		
4	Verbesina alternifolia	P-Forb	WINGSTEM			X	X		
5	Vernonia fasciculata	P-Forb	COMMON IRONWEED						X
5	Vernonia missurica	P-Forb	MISSOURI IRONWEED					X	
6	Veronicastrum virginicum	P-Forb	CULVER'S ROOT	X		X			
4	Viburnum lentago	Shrub	NANNYBERRY			X			
0	VIBURNUM OPULUS	Shrub	EUROPEAN HIGH-BUSH CRANBERRY		X				
6	Viburnum rafinesquianum	Shrub	DOWNY ARROWWOOD		X				
6	Viburnum recognitum	Shrub	SMOOTH ARROWWOOD						X
0	VINCA MINOR	Shrub	COMMON PERIWINKLE		X				
7	Viola lanceolata	P-Forb	LANCE-LEAVED VIOLET	X					X
4	Viola missouriensis	P-Forb	MISSOURI VIOLET				X		X
1	Viola pratincola	P-Forb	COMMON BLUE VIOLET				X		
7	Viola pubescens	P-Forb	DOWNY YELLOW VIOLET		X	X			
6	Viola sagittata	P-Forb	ARROW-LEAVED VIOLET		X				
3	Viola sororia	P-Forb	WOOLLY BLUE VIOLET		X		X		
4	Vitis cinerea	W-Vine	WINTER GRAPE			X			
2	Vitis riparia	W-Vine	RIVERBANK GRAPE	X	X	X	X	X	X
4	Vitis vulpina	W-Vine	FROST GRAPE	X	X		X	X	X
2	Vulpia octoflora	A-Grass	SIX WEEKS FESCUE	X					
5	Wolffia columbiana	A-Forb	WATER MEAL						X
0	Xanthium strumarium	A-Forb	COCKLEBUR				X	X	X
4	Zanthoxylum americanum	Shrub	PRICKLY ASH		X	X			
6	Zizia aurea	P-Forb	GOLDEN ALEXANDERS	X		X	X		
7	Zosterella dubia	P-Forb	WATER STAR GRASS				X		X

Land Cover Report

Lake County, Indiana

Prepared For:

Parsons Brinckerhoff

Prepared By:

Cardno JFNew

August 29, 2013

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Executive Summary

Cardno JFNew conducted land cover mapping and surveys for high quality natural resources within the 3,828-acre Indiana portion of the Illiana Corridor, from the Illinois/Indiana state line to the eastern extent of the project corridor at I-65. Areas that were considered natural communities were given quality grades of A-E using Illinois Natural Areas Inventory methodology as a guideline. Cultural cover types were created or heavily modified by human disturbance and are by definition Grade D or E. Six land cover types (forest [non-wetland], prairie [non-wetland], savanna, wetland, stream, lake and pond, and cultural) were identified and mapped. These were further broken down into 20 vegetation cover types (dry-mesic upland forest, mesic upland forest, mesic floodplain forest, wet-mesic floodplain forest, wet floodplain forest, mesic prairie, dry-mesic prairie, dry-mesic savanna, wetland, creek and pond, cropland, pasture and hayland, successional field – non-native grassland, successional field – forbland, successional field – shrubland, successional woodland, prairie restoration/planting, fencerow, tree plantation, and developed land). Cultural cover types made up 85 percent of the project area, and natural communities (including creeks and ponds) made up 15 percent of the project area. High quality (grade A and B) natural communities comprised just 1 percent of the project area. In addition, one naturally occurring plant species of conservation concern, listed as Watch List in Indiana, was identified.

1.0 Introduction

A two tier analysis is currently being conducted for the Illiana Corridor following the National Environmental Policy Act (NEPA) process. The first step (Tier One), an Environmental Impact Statement (EIS), has been completed to provide a preferred transportation system alternative and selected corridor (Corridor B3). This survey, preformed as part of the Tier Two EIS analysis, focuses on the Indiana portion of Corridor B3. Cardno JFNew was contracted by Parsons Brinckerhoff to map and describe the land cover types found within the Illiana Corridor in Lake County, Indiana. The purpose of this report is to document any sensitive natural areas within the footprint of the proposed project.

The goal of the land cover surveys was to categorize all land cover within the Illiana Corridor. Because the Illinois Natural History Survey (INHS) had previously mapped land cover types for the Illinois portion of the Illiana Corridor, land cover categorization and naming generally followed guidance in the report by the INHS, as well as that in the Illinois Natural Areas Inventory (White 1978); community classifications by Jacquart et al. (2002) were also followed. Another purpose of the land cover mapping was to determine the highest-quality natural communities and any sensitive natural areas present within the Illiana Corridor. Determinations of ecological value of areas in the Illiana Corridor can then be used to ultimately help inform decisions regarding placement of the project footprint within the Illiana Corridor.

The proposed project is a corridor that typically follows a west to east direction, starting in southwestern Will County, Illinois, continuing through Kankakee County, Illinois, and ending in Lake County, Indiana. The Illiana Corridor is generally a 610 meter (2,000 foot) wide corridor plus additional areas at intersections, which extends from I-55 near Wilmington, Illinois on the west end to I-65 west of Hebron, Indiana on the east end. Cardno JFNew was only contracted to conduct the land cover survey from the Illinois/Indiana state line to the eastern extent of the Illiana Corridor (hereafter Survey Area; Appendix A). This corridor is approximately 19 km (11.8 miles) long and stretches about three-quarters of the way across Lake County. The Survey Area is approximately 3,828 acres entirely within rural southern Lake County, Indiana.

2.0 Site Description

The Survey Area is located within the Central Corn Belt Plains Ecoregion (Level III), which historically consisted primarily of prairie communities on glaciated plains. Specifically, the Survey Area is within the Illinois/Indiana Prairies Ecoregion (Level IV), which is characterized by undulating land with dark fertile soils. At the time of settlement, the Survey Area would have consisted of oak-hickory forest and tallgrass prairie with more mesic forest communities confined to riparian areas. Today, the primary land uses are agriculture (primarily soybeans [*Glycine max*] and corn [*Zea mays*]) and some livestock farming (USEPA 2010).

Homoya et al. (1985) described the twelve natural regions of Indiana as determined by biotic and abiotic factors such as climate, soils, glacial history, topography, species composition, and physiography. Using this classification system, the Survey Area is located at the south end of the Northwestern Morainal Natural Region, near its boundary with the Grand Prairie Natural Region. The Northwestern Morainal Natural Region historically was made up of a diverse mix of natural communities as a result of being at the intersection of the eastern deciduous forest, the tallgrass prairie, and the northern forest and wetlands vegetation types. More specifically, the Survey Area is located in the Valparaiso Moraine Section of the Northwestern Morainal Natural Region. Where the Survey Area is located at its western end, the Valparaiso Moraine Section is characterized by rolling till plains made up of primarily calcareous silty clay loam soils. Although the eastern portion of the Valparaiso Moraine Section was historically primarily forested, the western end was comprised predominantly of prairie. Fen, bog, lake, marsh, savanna, seep spring, and swamp were also found within the Valparaiso Moraine Section prior to settlement. Forests found in the western portion of the Valparaiso Moraine Section are primarily oak-hickory dominated and often grade into tallgrass prairie communities.

Soils within the Survey Area are within the Elliott-Markham-Pewamo association on upland till plains, with lobes along the West Creek and Cedar Creek drainages in the Morley-Blount-Pewamo association; both of these associations formed in moderately fine textured glacial till (USDA SCS 1972). The Elliott-Markham-Pewamo association is characterized by USDA SCS (1972) as being nearly level and gently sloping, with Elliott soils on broad flats, Markham soils on knolls and ridges, and Pewamo soils in swales and narrow drainageways. The soils in this association have a dark-colored surface layer and formed under prairie vegetation (USDA SCS 1972). The Morley-Blount-Pewamo association ranges from steep to nearly level, with Morley soils on knolls and ridges, Blount soils on broad flats, and Pewamo soils in swales and narrow drainageways (USDA SCS 1972). Like the Elliott-Markham-Pewamo association, the soils in the Morley-Blount-Pewamo association have a dark surface layer and likely developed under prairie vegetation. The underlying glacial till in both soil associations is calcareous (USDA SCS 1972).

3.0 Methods

Cardno JFNew reviewed resource maps prior to fieldwork to determine likely land cover types and vegetation cover types within the Survey Area. Resources used included aerial photographs, soils maps, wetland delineations and National Wetlands Inventory maps.

For the purposes of this report, land cover types are general categorizations such as forest, prairie, savanna, cultural, etc., whereas vegetation cover types are more specific categorizations. Where possible, the vegetation cover type was related to a presettlement plant community type such as dry-mesic upland forest or dry-mesic prairie. In some cases, only a generic categorization such as cropland or successional field was recorded because the area had no affinity to a natural community.

To perform the field assessment, meander surveys were conducted throughout the non-wetland portions of the Survey Area from September 12, 2012 through October 3, 2012, from April 17, 2013 through May 2, 2013, and from August 12, 2013 through August 15, 2013; wetland areas were surveyed at a different time and are documented in the *Illiana Corridor Preliminary Regulated Wetland and Waters Delineation Report* (2013). Each non-wetland land cover type was marked on a field map, and characteristic plant species were recorded for each polygon. Cropland, fencerow, and developed land (lawn, roads and roadsides, places with buildings, etc.) were mapped, but characteristic plant species lists were not recorded. Obvious wetland areas, ponds, and creeks were mapped but not categorized or surveyed for characteristic plant species (note that characteristic plants in wetlands and other "waters of the United States" are included in the *Illiana Corridor Preliminary Regulated Wetlands and Waters Delineation Report* [2013]).

Natural area quality grading generally followed White (1978) and was determined by best professional judgment based on metrics including similarity to a natural community, plant species composition, cover by invasive species, community structure, ecological processes, and physical environment. Natural area quality was only graded in natural communities; cultural communities (including the different types of successional field) were not graded because, by definition these areas were created by human disturbance and are by nature Grade D or E. In addition, because the focus of this work was upland communities, wetland communities were not graded. The grading system for natural communities is shown in Table 3-1.

Table 3-1. Grading System for Natural Communities

Grade	Description
Grade A	Relatively stable or undisturbed communities
Grade B	Late successional or lightly disturbed communities
Grade C	Mid-successional or moderately to heavily disturbed communities
Grade D	Early successional or severely disturbed communities
Grade E	Very early successional or very severely disturbed communities

Any areas that were found to consist of medium to high quality natural communities (Grades A and B) were surveyed in more detail by taking an inventory of all vascular plant species observed. As a result, complete plant inventories were not compiled for every area. All mapped cover types were of low natural area quality unless otherwise noted. Casual wildlife observations were recorded in the field notes; these observations are included in the *Illiana Corridor Endangered, Threatened, and Rare Wildlife Report* (2013).

For areas where plant inventories were conducted, data were entered into the Floristic Quality Assessment computer application (CRI/CDF 2000) (Chicago region database) to provide a list of species observed and an assessment of floristic quality. Swink and Wilhelm (1994) assigned each native plant species a coefficient of conservatism (C) value from 0 to 10, which is an assessment of the fidelity of each species to a pre-settlement

natural plant community, and which consequently defines the ability of the species to withstand site degradation. Plants with C values of 10 are typically the first to be lost from a site when the site begins to become degraded. Conversely, plants with C values of 0 can withstand a large amount of site degradation. The mean C value is the average of the C values of all plant species on a site; the Floristic Quality Index (FQI) takes into account the mean C value and the number of species on the site. Together, the mean C value and FQI comprise the Floristic Quality Assessment (FQA) (Taft et al. 1997) and give an understanding of the overall quality of the site based on the plant species present. FQA can be used to identify natural areas, to compare the quality of a site relative to other sites, and to measure how the quality of a site has changed over time (Swink and Wilhelm 1994). A site with a mean C value of 3.5 or higher or an FQI of 35 or higher is likely of at least marginal natural area quality; a site with a mean C of 4.5 or higher or an FQI of 45 or higher is almost certainly a remnant natural area (Swink and Wilhelm 1994).

Botanical nomenclature throughout this report follows Swink and Wilhelm (1994). Common names followed by an asterisk (*) denote vascular plants that are adventive to the Chicago region per Swink and Wilhelm (1994).

4.0 Results

4.1 Plant Species of Conservation Concern

Four plant species on the lists of Indiana endangered, threatened, rare, or watch list species were observed during the 2012 and 2013 surveys (Table 4-1). Three of these species, white pine (*Pinus strobus*), scrub pine (*Pinus virginiana*), and eastern white cedar (*Thuja occidentalis*) appeared to have been intentionally planted for reforestation, timber harvest, or landscaping purposes. One species, green twayblade (*Liparis loeselii*), occurred naturally in mesic prairie between milepost 5.3 and 5.5. Green twayblade is on the Indiana Watch List but is not listed as endangered, threatened, or rare. No plant species on the lists of federally endangered or threatened species were observed within the Survey Area.

Table 4-1. Plant Species of Conservation Concern Identified within the Survey Area

Botanical Name	Common Name	Status
Liparis loeselii	Green twayblade	Indiana Watch List
Pinus strobus[t]	White pine	Indiana Rare
Pinus virginiana[t]	Scrub pine	Indiana Watch List
Thuja occidentalis[t]	Eastern white cedar	Indiana Endangered

[t] Obviously planted

4.2 Land Cover Types

Six land cover types were mapped in the approximately 3,828 acre Survey Area (Appendix B). In order of abundance by acreage, these cover types include: cultural, forest, wetland, stream, lake and pond, savanna, and prairie (Table 4-2; Appendix B). Wetland and stream, lake and pond cover 259 acres of the approximately 3,828-acre Survey Area (7 percent); non-wetlands/non-waterbodies cover 3,569 acres (93 percent).

Table 4-2. Land Cover Types within the Survey Area, Ranked by Acreage

Land Cover Type	Acres
Cultural	3254
Forest (non-wetland)	227
Wetland	189
Stream, Lake, and Pond	70
Savanna	67
Prairie (non-wetland)	21

Below, the land cover types are discussed in sections numbered 4.3.# with headings not displayed in italics.

4.3 Vegetation Cover Types

Twenty (20) vegetation cover types were mapped within the Survey Area (Appendix C). Several of these vegetation cover types showed an affinity to a natural community classification, but for the most part the quality of the communities was low. Where the vegetation cover type was similar to a natural community, the quality grade is also shown on the maps in Appendix C. Other vegetation cover types represent non-native vegetation cover types or assimilations of early successional native species that do not form a natural community, and will be discussed only briefly following the discussions about the native vegetation cover types. Wetland cover types are discussed in the *Illiana Corridor Preliminary Regulated Wetland and Waters Delineation Report* (2013).

The vegetation cover types identified within the Survey Area, ranked in order of greatest acreage to least acreage, are displayed in Table 4.3. Approximately 56 percent (2,143 acres) of the Survey Area was represented by land used for agricultural purposes (including cropland and pasture and hayland), and 15 percent (588 acres) was represented by developed land. Cover types that potentially represent natural vegetation communities, including forest, prairie, savanna, wetland, and stream, lake and pond, totaled 574 acres (15 percent of the Survey Area). The remaining cover types (523 acres, 14 percent of the Survey Area) represented highly anthropogenically altered areas (successional field, successional woodland, fencerow, prairie restoration/planting, and tree plantation.

Table 4-3. Vegetation Cover Types within the Survey Area, Ranked by Acreage

Vegetation Cover Type	Acres
Cropland	2072
Developed Land	588
Wetland	189
Dry-mesic Upland Forest	176
Successional Field – Non-native Grassland	138
Successional Field – Forbland	98
Fencerow	93
Successional Field – Shrubland	90
Pasture and Hayland	71
Successional Woodland	70
Creek and Pond	70
Dry-mesic Savanna	67
Mesic Floodplain Forest	31
Mesic Upland Forest	19
Tree Plantation	18
Prairie Restoration/Planting	16
Mesic Prairie	15
Dry-mesic Prairie	6
Wet-mesic Floodplain Forest	1
Wet Floodplain Forest	<1

Below, the vegetation cover types are discussed in sections numbered 4.3.#.# with headings displayed in italics.

4.3.1 Forest

Non-wetland forest covered 227 acres (6 percent) of the Survey Area (Table 4-2). Several forest communities, including dry-mesic upland forest, mesic upland forest, mesic floodplain forest, wet-mesic floodplain forest, and wet floodplain forest were represented within the Survey Area (Table 4-3). Each of the non-wetland forest cover types is discussed in more detail below.

4.3.1.1 Dry-mesic Upland Forest

Dry-mesic upland forest is a natural community of Indiana and Illinois that is intermediate in soil moisture and that has a canopy that is more open than a mesic upland forest (White 1978; Jacquart et al. 2002). Trees that are typically dominant in dry-

mesic upland forest include white oak (*Quercus alba*), red oak (*Quercus rubra*), and black oak (*Quercus velutina*), with other characteristic species including shagbark hickory (*Carya ovata*), mockernut hickory (*Carya tomentosa*), flowering dogwood (*Cornus florida*), ironwood (*Ostrya virginiana*), and black haw (*Viburnum prunifolium*) (White 1978; Jacquart et al. 2002).

Dry-mesic upland forest was identified at various locations within the Survey Area, totaling 176 acres (5 percent of the Survey Area). Other areas similar in composition included in the savanna cover type are currently woodlands at an intermediate successional stage between savanna and forest that are gradually succeeding into dry-mesic upland forest as a result of canopy closure from fire suppression, and it is possible that the identified dry-mesic upland forest was a savanna or open woodland when natural and anthropogenic fires were more frequent. Past land use, fire suppression, and spread of invasive species have led to degradation of the dry-mesic upland forest communities within the Survey Area, but these areas still retain characteristics of the pre-settlement dry-mesic upland forests.

A dry-mesic upland forest community was observed east of milepost 0.0. This forested complex ranged in quality from good (Figure 4-1) to very heavily degraded (grade B- to E) and was present between developed areas (homes with mowed yards) and cropland east of I-65. Characteristic canopy and subcanopy species in this dry-mesic upland forest community included bitternut hickory (*Carya cordiformis*), shagbark hickory, wild black cherry (*Prunus serotina*), and red oak; white oak, swamp white oak (*Quercus bicolor*), and bur oak (*Quercus macrocarpa*) were also noted in this community. Wild black cherry and black locust* (*Robinia pseudoacacia*) were characteristic in the most degraded portions of this dry-mesic upland forest. The shrub stratum was characterized by choke cherry (*Prunus virginiana*), prickly wild gooseberry (*Ribes cynosbati*), and black haw, with multiflora rose* (*Rosa multiflora*), black raspberry (*Rubus occidentalis*), and blackberry (*Rubus* sp.) more abundant in lower quality areas. Virginia creeper (*Parthenocissus quinquefolia*) and poison ivy (*Rhus radicans*) characterized the woody vine stratum. Typical understory species included wild onion (*Allium canadense*), bottlebrush grass (*Hystrix patula*), and red honeysuckle (*Lonicera dioica*), as well as typical ephemeral wildflowers such as cut-leaved toothwort (*Dentaria laciniata*), dutchman's breeches (*Dicentra cucullaria*), white trout lily (*Erythronium albidum*), yellow trout lily (*Erythronium americanum*), wild geranium (*Geranium maculatum*), and red trillium (*Trillium recurvatum*). Other dry-mesic upland forest herbaceous understory species observed in this area included Burdick's leek (*Allium tricoccum* var. *burdickii*), rue anemone (*Anemonella thalictroides*), spring beauty (*Claytonia virginica*), Virginia waterleaf (*Hydrophyllum virginianum*), May apple (*Podophyllum peltatum*), Jacob's ladder (*Polemonium reptans*), bloodroot (*Sanguinaria canadensis*), and feathery false Solomon's seal (*Smilacina racemosa*). Garlic mustard* (*Alliaria petiolata*) was more abundant in the more degraded areas. The most heavily degraded areas (grade E) lacked the overstory structure of a dry-mesic upland forest and were dominated by trees including box elder (*Acer negundo*) and wild black cherry, shrubs including multiflora rose*, black raspberry, and blackberry, and herbaceous forbs including garlic mustard* and red trillium. Several vernal pools were located within the dry-mesic upland forest community. These

generally lacked trees, though some eastern cottonwoods (*Populus deltoides*) were present within and around the perimeters of the pools. Characteristic vernal pool species included false nettle (*Boehmeria cylindrica*), an unidentifiable sedge (*Carex* sp.), fowl manna grass (*Glyceria striata*), and poison ivy. Evidence of past logging was noted in the higher quality portions of this dry-mesic upland forest area, and the higher quality areas were second growth forests; both of these factors led to a slight reduction in the quality grade assigned to those polygons. Because portions of this area were of good to medium natural area quality, a more complete botanical inventory was recorded, and results can be found in Appendix E. Results of the inventory yielded a mean C value of 3.5 (native mean C value = 3.9) and an FQI of 42.7 (native FQI = 45.6). Swink and Wilhelm (1994) state that sites with mean C values of 3.5 or higher or FQI of 35 or higher likely are of at least marginal natural area quality.

Figure 4-1. Good Quality Dry-mesic Upland Forest

Another dry-mesic upland forest community was located between mileposts 4.0 and 4.9, continuing across much of the Illiana Corridor. When this area was investigated in 2012, it was considered to be of medium to low natural area quality (grade C to D) overall with less degraded portions through the middle that were of good to medium natural area quality (grade B-) (Figure 4-2). However, prior to April 2013, this dry-mesic upland forest community was logged and approximately 250 white oaks were felled (Figure 4-3). This has led to a loss of dry-mesic upland forest community structure, and an overall decrease in quality in this area to a medium to low quality dry-mesic upland forest. Characteristic canopy and subcanopy species included shingle oak (*Quercus imbricaria*), bur oak, red oak, black oak, shagbark hickory, and wild black cherry. White oak was also considered a characteristic species prior to logging. Typical understory species included wild onion, Burdick's leek, rue anemone, spring beauty, cut-leaved toothwort, white trout lily, white snakeroot (*Eupatorium rugosum*), smooth wild licorice (*Galium circaezans*), shining bedstraw (*Galium concinnum*), sweet-scented bedstraw (*Galium triflorum*), honeysuckle* (*Lonicera* sp.), Virginia creeper, smooth Solomon's seal (*Polygonatum canaliculatum*), poison ivy, elm-leaved goldenrod (*Solidago ulmifolia*), red

trillium, yellow violet (*Viola pubescens*). Additional dry-mesic upland forest species noted in this area included wood sandwort (*Arenaria lateriflora*), Jack-in-the-pulpit (*Arisaema triphyllum*), hairy wood sedge (*Carex hirtifolia*), common oak sedge (*Carex pensylvanica*), downy green sedge (*Carex swanii*), pointed tick trefoil (*Desmodium glutinosum*), wild geranium (*Geranium maculatum*), woodland sunflower (*Helianthus divaricatus*), and starry campion (*Silene stellata*). Other plants of interest found in this dry-mesic upland forest included lady fern (*Athyrium filix-femina*), spinulose shield fern (*Dryopteris spinulosa*), Biltmore ash (*Fraxinus biltmoreana*), red honeysuckle, and downy wafer ash (*Ptelea trifoliata* var. *mollis*). Much of this dry-mesic upland forest area lacked the composition present in the medium quality areas (those considered good quality prior to being logged) and had a greater percentage of invasive species and thus was graded as low quality even though its overstory structure was the same as that in the medium quality areas. Understory species that were more abundant in the low quality dry-mesic upland forest included multiflora rose*, Yankee blackberry (*Rubus pensilvanicus*), garlic mustard*, and honeysuckle*.

Figure 4-2. Medium Quality Dry-mesic Upland Forest, Prior to Logging

Figure 4-3. Medium Quality Dry-mesic Upland Forest, after Logging

A small degraded mesic upland forest inclusion was present on the east side of this dry-mesic upland forest. This area was dominated by black walnut (*Juglans nigra*), and characteristic species included white ash (*Fraxinus americana*), white snakeroot, and black raspberry. Nodding wild onion (*Allium cernuum*) and wild bergamot (*Monarda fistulosa*) were also noted within this inclusion.

The western side of this large dry-mesic upland forest area (primarily between mileposts 4.7 and 4.8) (Figure 4-4) was mostly separated from the area described above by a wetland and pond and was treated as a separate unit. This area consisted of a steep slope and two terraces above a wetland complex. Although the forest was overall characterized by dry-mesic upland forest species, the lower terrace and slope contained some mesic upland forest species, and along the wetland at the bottom of the slope some wetland species were present within the dry-mesic upland forest community. Overall, this area was heavily degraded (grade D). Dominant species in the canopy and subcanopy included bur oak and shagbark hickory. The shrub layer was dominated by amur honeysuckle* and multiflora rose*. Characteristic species throughout this forest community included shingle oak, wild black cherry, pignut hickory, red cedar (*Juniperus virginiana* var. *crebra*), and white oak in the canopy and subcanopy, black raspberry and common blackberry, in the shrub layer, Virginia creeper and poison ivy in the woody vine stratum, and pokeweed (*Phytolacca americana*), creeping Charlie* (*Glechoma hederacea*), arrow-leaved aster (*Aster sagittifolius*), and white snakeroot in the herbaceous layer. Species characteristic of the more mesic areas included white mulberry* (*Morus alba*), red oak, black walnut, bigtooth aspen (*Populus grandidentata*), and flowering dogwood in the canopy and subcanopy and European highbush cranberry* (*Viburnum opulus*) in the shrub stratum. In the wetter areas near the wetland, quaking aspen (*Populus tremuloides*), weeping willow* (*Salix babylonica*), box elder, and black ash (*Fraxinus nigra*) were characteristic of the forest community.

Figure 4-4. Dry-mesic Upland Forest

A small heavily degraded dry-mesic upland forest community was mapped at milepost 5.0 at the south end of the Survey Area. Because of the high level of degradation and abundance of invasive species, this area was considered of very low natural area quality (grade D-). Characteristic species were similar to those described in the dry-mesic upland forest area between milepost 4.7 and 4.8.

Another dry-mesic upland forest community was located between mileposts 10.7 and 10.8 near the middle of the Illiana Corridor. This area consisted of two separate parcels that were of low natural area quality (grade D) (Figure 4-5). Dominant trees in this portion of the community included black oak, shagbark hickory, and wild black cherry in the canopy and subcanopy; the herbaceous stratum was dominated by tall fescue* (*Festuca elatior*). Other characteristic plant species included bur oak and pignut hickory (*Carya glabra*) in the canopy, amur honeysuckle* (*Lonicera maackii*), multiflora rose*, and common blackberry (*Rubus allegheniensis*) in the shrub layer, poison ivy in the woody vine layer, and white snakeroot, garlic mustard*, panicled aster (*Aster simplex*), Hungarian brome* (*Bromus inermis*), pokeweed (*Phytolacca americana*), and Virginia wild rye (*Elymus virginicus*) in the herbaceous layer. Similar degraded dry-mesic upland forest areas were located between milepost 3.0 and 3.2. These areas received grades of C- and D as a result of encroachment by invasive species and the young age of the forest polygons.

Figure 4-5. Degraded Dry-mesic Upland Forest

A small dry-mesic upland forest community that was apparently grazed leading to a lack of shrubs in the understory was noted between mileposts 11.3 and 11.5 at the south end (and extending off-site to the south) of the Survey Area (Figure 4-6). Although this area contained ground cover dominated by native species, the lack of structure resulting from grazing caused this area to be considered of medium natural area quality (grade C). Characteristic species were similar to those described in the dry-mesic upland forest areas east of milepost 0.0 and between mileposts 4.0 and 4.9.

Figure 4-6. Dry-mesic Upland Forest with Grazed Understory

4.3.1.2 Mesic Upland Forest

The mesic upland forest natural community in Indiana and Illinois has a greater degree of soil moisture than the dry-mesic upland forest and is often located on north-facing slopes, in protected ravines, and in other areas with high available soil moisture (White 1978; Jacquart et al. 2002). The canopy of a mesic upland forest is closed, leading to an

abundance of shade-tolerant understory and herbaceous species (White 1978). Sugar maple (*Acer saccharum*), beech (*Fagus grandifolia*), red oak, and basswood (*Tilia americana*) are the dominant species in an undisturbed mesic upland forest, and pawpaw (*Asimina triloba*), blue beech (*Carpinus caroliniana* var. *virginiana*), bitternut hickory, and bladdernut (*Staphylea trifolia*) are often characteristic of this community in the northern part of the state (White 1978; Jacquart et al. 2002).

Two areas with an affinity to the mesic upland forest natural community were identified within the Survey Area, totaling 19 acres (<1 percent). Both of these areas were severely degraded and overall had poor community structure, and they lacked the dominant species and dense canopy coverage typical of the mesic upland forest natural community.

One of the mesic upland forest communities was located between milepost 6.5 and 6.7 on the north side of the Illiana Corridor. This area was of extremely low natural area quality and was graded a D-. Characteristic tree species within this degraded mesic upland forest included black walnut, wild black cherry, white pine, and eastern cottonwood. White pine, a state rare plant in Indiana, was obviously planted in this mesic upland forest community. The shrub layer in this degraded mesic upland forest included black raspberry, Autumn olive* (*Elaeagnus umbellata*), amur honeysuckle*, honeysuckle*, and multiflora rose*. Virginia creeper and poison ivy were characteristic woody vines in the degraded mesic upland forest community. The understory was comprised of garlic mustard*, orchard grass* (*Dactylis glomerata*), white snakeroot, white avens (*Geum canadense*), false Solomon's seal (*Smilacina* sp., possibly *S. stellata*), and violet (*Viola* sp.). Past land use including potentially logging and/or grazing was indicated by the flora of the area, and this coupled with the spread of invasive species has led to severe degradation of the mesic upland forest community at this location within the Survey Area.

Degraded mesic upland forest was also mapped between milepost 5.6 and 6.2 near the middle of the Illiana Corridor. Because of past land use that likely included logging and/or grazing, the natural quality of this area was very low and as a result it was given a grade of D to D-. Dominant species in this mesic upland forest area included wild black cherry in the canopy layer and amur honeysuckle* in the shrub layer. Other characteristic species observed in this degraded mesic upland forest included common blackberry, common buckthorn* (*Rhamnus cathartica*), staghorn sumac (*Rhus typhina*), and multiflora rose* in the shrub layer, poison ivy, Virginia creeper, and riverbank grape (*Vitis riparia*) in the woody vine layer, and garlic mustard*, white avens, and wood nettle (*Laportea canadensis*) in the herbaceous layer.

4.3.1.3 Mesic Floodplain Forest

Mesic floodplain forest occurs as a natural community in Indiana and Illinois along streams and rivers, but as a result of topography or soil texture the soil remains moderately well drained (White 1978; Jacquart et al. 2002). Dominant plant species typically include sugar maple, white oak, bur oak, American elm (*Ulmus americana*),

slippery elm (*Ulmus rubra*), and basswood, and black walnut and white ash are characteristic of this community (White 1978; Jacquart et al. 2002).

Mesic floodplain forest communities were identified between milepost 5.0 and 5.2 nearly entirely across the Illiana Corridor and between milepost 5.4 and 5.6 at the north end of the Illiana Corridor. These areas totaled 31 acres (1 percent of the Survey Area). These forested areas were situated near creeks and adjacent to wetlands in a floodplain position on the landscape. Characteristic species within the canopy and subcanopy of this area included shingle oak, bur oak, red cedar, shagbark hickory, green ash (*Fraxinus pennsylvanica* var. *subintegerrima*), wild black cherry, Osage orange* (*Maclura pomifera*), and white mulberry*. The shrub layer was dominated by amur honeysuckle, multiflora rose*, Japanese barberry* (*Berberis thunbergii*), Autumn olive*, common blackberry, and black raspberry. Virginia creeper and poison ivy were characteristic of the woody vine stratum. Herbaceous species common in the mesic floodplain forest included pokeweed, garlic mustard*, and common oak sedge. This medium to low quality area does not exactly match the composition of a natural mesic floodplain forest community as a result of habitat degradation and invasion by non-native species, and as a result it was given a grade of C-.

4.3.1.4 Wet-mesic Floodplain Forest

In Indiana and Illinois, wet-mesic floodplain forest occurs as a natural community along streams and rivers, and as a result flooding serves as a natural disturbance mechanism to the community. No clear dominants are present in this community as a result of the presence of a mixture of trees (White 1978). Species characteristic of the wet-mesic floodplain forest natural community in the northern part of the state include silver maple (*Acer saccharinum*), hackberry (*Celtis occidentalis*), bur oak, pin oak (*Quercus palustris*), American elm, spicebush (*Lindera benzoin*), and green ash (White 1978).

One wet-mesic floodplain forest community was identified between milepost 1.1 and 1.3 along the southern edge of the Illiana corridor, totaling 1 acre (<1 percent of the Survey Area) (Figure 4-7). This area was characterized by wetland pockets and streams throughout. Because of spread of invasive species and a lack of natural disturbance as a result of changes to natural drainage, the area was graded a D. Characteristic tree species within the wet-mesic floodplain forest community included ash (*Fraxinus* sp.), Osage orange*, eastern cottonwood, and wild black cherry. Honeysuckle* and multiflora rose* were abundant in the understory. The herbaceous stratum was characterized by panicled aster, gray sedge (either *Carex amphibola* or *Carex grisea*), and poison ivy, with knee grass (*Panicum dichotomiflorum*) around the edges.

Figure 4-7. Degraded Wet-mesic Floodplain Forest

4.3.1.5 Wet Floodplain Forest

The wet floodplain forest natural community occurs along streams and rivers in Indiana and Illinois, but flooding is so frequent that the overstory and understory are more open and tree diversity is less than in the wet-mesic floodplain forest (White 1978). Characteristic species in the wet floodplain forest community include silver maple, eastern cottonwood, sycamore (*Platanus occidentalis*), red maple (*Acer rubrum*), river birch (*Betula nigra*), black willow (*Salix nigra*), and box elder, and any of these can be locally dominant (White 1978).

A wet floodplain forest community totaling <1 acre (<1 percent of the Survey Area) was identified between milepost 2.6 and 2.7 in the southern half of the Illiana Corridor. This area was clearly not a natural forest, but instead was an assemblage of tree and shrub species in an area that historically was floodplain and that now exists as a low spot between the road and an earthen dam. As a result of the severe level of disturbance that has taken place where the wet floodplain forest natural community once existed, and the subsequent invasion by non-native plant species, the area was given a grade of D-. Characteristic tree species within the wet floodplain forest community included white mulberry*, gray poplar* (*Populus canescens*), and peach-leaved willow (*Salix amygdaloides*). The shrub stratum was dominated by amur honeysuckle*, multiflora rose*, elderberry (*Sambucus canadensis*), and European highbush cranberry* (*Viburnum opulus*). Riverbank grape (*Vitis riparia*) was abundant in the woody vine stratum, and the lone dominant herbaceous species in the wet floodplain forest was reed canary grass* (*Phalaris arundinacea*).

4.3.2 Prairie

Although much of the project area was likely historically covered by prairie (Homoya et al. 1985), remnant prairie was observed to be minimal in the Survey Area during the 2012 surveys. Some of the remnant prairie areas were intermediate between forbland with few prairie species and remnant prairie, and as such some of the areas here

identified as forbland were likely prairie historically. Areas described as prairie in this study cover 21 acres (1 percent) of the Survey Area (Table 4-2). Remnants of mesic prairie and dry-mesic prairie were represented within the Survey Area (Table 4-3). Each of the prairie cover types is discussed in more detail below.

4.3.2.1 Mesic Prairie

Mesic prairie is a natural community of Indiana and Illinois that has soil moisture that allows for maximum plant diversity and height (White 1978; Jacquart et al. 2002). Dominant species in the best examples of this community include big bluestem (*Andropogon gerardii*), Indian grass (*Sorghastrum nutans*), and/or prairie dropseed (*Sporobolus heterolepis*), and characteristic species often include cream wild indigo (*Baptisia leucophaea*), shooting star (*Dodecatheon meadia*), rattlesnake master (*Eryngium yuccifolium*), prairie blazing star (*Liatris pycnostachya*), hoary puccoon (*Lithospermum canescens*), white prairie clover (*Petalostemum candidum*), sand prairie phlox (*Phlox pilosa*), compass plant (*Silphium laciniatum*), and prairie dock (*Silphium terebinthinaceum*) (White 1978; Jacquart et al. 2002).

Several remnant mesic prairie communities were observed in four locations within the Survey Area, totaling 15 acres (<1 percent of the Survey Area). At all but one of these locations, the mesic prairie was substantially degraded, leading to the polygons being graded from medium to poor quality (grade C to D-). Along a railroad track, a mesic prairie remnant was less degraded and ranged from good to medium quality (grade B to C-). Fire suppression has led to encroachment of the mesic prairie communities by shrubs and invasive herbaceous species. Invasion by non-native species has also taken place.

Figure 4-8. Good Quality Mesic Prairie along Railroad Tracks

The best quality remnant mesic prairie observed within the Survey Area was located between milepost 6.4 and 6.5, along the east side of a railroad track. Pockets of good quality (grade B) mesic prairie (Figure 4-8) were documented amongst more degraded (grade C-) mesic prairie (Figure 4-9) and forbland and fencerow areas. This area had

good diversity for a mesic prairie community. The good quality mesic prairie was characterized by fewer invasive species and greater species richness, as well as presence and dominance by more of the characteristic mesic prairie species. By contrast, the more degraded portion of this mesic prairie remnant had more invasive and non-native species, particularly garlic mustard*, giant ragweed (*Ambrosia trifida*), yellow rocket* (*Barbarea vulgaris*), and wild parsnip* (*Pastinaca sativa*), as well as greater encroachment by shrubs. There was also a lower richness of prairie species in the more degraded area, and more generalist prairie species were present. Characteristic species in this mesic prairie remnant included little bluestem (*Andropogon scoparius*), round-headed bush clover (*Lespedeza capitata*), wild bergamot, yellow coneflower (*Ratibida pinnata*), prairie dock, tall goldenrod (*Solidago altissima*), and prairie cord grass (*Spartina pectinata*). Other prairie species observed in this remnant included nodding wild onion, false toadflax (*Comandra umbellata*), shooting star, prairie alum root (*Heuchera richardsonii*), prairie sundrops (*Oenothera pilosella*), switch grass (*Panicum virgatum*), sand prairie phlox, pasture rose (*Rosa carolina*), rosin weed (*Silphium integrifolium*), Indian grass, common spiderwort (*Tradescantia ohiensis*), culver's root (*Veronicastrum virginicum*), and golden alexanders (*Zizia aurea*). Shooting star and golden alexanders were noted in the highest quality portions of this remnant mesic prairie. Because this mesic prairie remnant had good floristic quality, a more complete botanical inventory was recorded, and results can be found in Appendix E. This inventory was conducted in April 2013, and results of the inventory yielded a mean C value of 2.4 (native mean C value = 3.6) and an FQI of 18.0 (native FQI = 22.1). We expect that these values would be higher if an inventory were conducted later in the growing season when prairie species are more prevalent. Swink and Wilhelm (1994) state that sites with mean C values of 3.5 or higher or FQI of 35 or higher likely are of at least marginal natural area quality.

Figure 4-9. Degraded Mesic Prairie along Railroad Tracks

Another area of mesic prairie was noted between milepost 5.8 and 6.1, near the middle of the Illiana Corridor. This area had generally low diversity for a mesic prairie community, and it appeared that weedy native species and shrubs were beginning to

invade and outcompete native species. As a result of this and a lack of dominance by prairie grasses, this area was assigned a grade of C. Dominant remnant prairie plant species in this mesic prairie area included wild quinine (*Parthenium integrifolium*), prairie dock, and compass plant. Dominant species that are not characteristic of a mesic prairie but that have invaded this remnant included red cedar, Autumn olive*, gray dogwood (*Cornus racemosa*), and tall goldenrod. Other prairie species characteristic of this remnant included Indian grass, switch grass, showy goldenrod (*Solidago speciosa*), stiff goldenrod (*Solidago rigida*), and heath aster (*Aster ericoides*). Additional characteristic species present in this remnant included Queen Anne's lace* (*Daucus carota*), tall agrimony (*Agrimonia gryposepala*), multiflora rose*, Hungarian brome*, tall fescue*, broom sedge* (*Andropogon virginicus*), Canada goldenrod (*Solidago canadensis*), common grass-leaved goldenrod (*Solidago graminifolia*), and shining sumac (*Rhus copallina var. latifolia*).

Four small remnant mesic prairie areas were identified between milepost 5.2 and 5.6 in the middle and northern parts of the Illiana Corridor. These areas were within shrubland, indicating that past land use and fire suppression have likely caused a much larger historic prairie to be reduced to the small area that it currently encompasses. These areas were of fairly low natural area quality (grade D+) due to poor prairie structure and composition, and they were characterized by prairie species including smooth blue aster (*Aster laevis*), rough blazing star (*Liatris aspera*), old-field panic grass (*Panicum implicatum*), prairie dock, early goldenrod (*Solidago juncea*), old-field goldenrod (*Solidago nemoralis*), and stiff goldenrod. Other characteristic species in these areas included gray dogwood, Autumn olive*, wild strawberry (*Fragaria virginiana*), red cedar, Kentucky blue grass* (*Poa pratensis*), wild black cherry, smooth sumac (*Rhus glabra*), multiflora rose*, blackberry (*Rubus* sp.), tall goldenrod, and hairy grass-leaved goldenrod (*Solidago graminifolia* var. *nuttallii*). Other species of interest noted in these areas included cut-leaved grape fern (*Botrychium dissectum*), panicled tick trefoil (*Desmodium paniculatum*), and green twayblade.

Three low quality, heavily degraded (grade D-) mesic prairie remnants were identified between milepost 5.0 and 5.2 in the northern half of the Illiana Corridor. Past land use and disturbances, potentially in the form of hydrological drainage, have led to the degradation of these areas. This has resulted in invasion by undesirable species, and as a result these areas were dominated by goldenrod (Solidago sp., either *S. altissima* or *S. canadensis*). Prairie species characteristic of these areas included heath aster, New England aster (*Aster novae-angliae*), pasture thistle (*Cirsium discolor*), sawtooth sunflower (*Helianthus grosseserratus*), old-field goldenrod, and stiff goldenrod. Additional species characteristic of these areas included wild strawberry (*Fragaria virginiana*), tall agrimony, common blackberry, Autumn olive*, gray dogwood, Queen Anne's lace*, poison ivy, common grass-leaved goldenrod, red cedar, field thistle* (*Cirsium arvense*), and yarrow* (*Achillea millefolium*).

4.3.2.2 Dry-mesic Prairie

Dry-mesic prairie has slightly less soil moisture than mesic prairie, and the resulting flora is therefore slightly different (White 1978; Jacquart et al. 2002). Dominant species

in this natural community of Indiana and Illinois typically include little bluestem (*Andropogon scoparius*), Indian grass, and porcupine grass (*Stipa spartea*), and characteristic species often include leadplant (*Amorpha canescens*), purple coneflower (*Echinacea pallida*), rough blazing star, and prairie cinquefoil (*Potentilla arguta*) (White 1978; Jacquart et al. 2002).

Six remnant dry-mesic prairie areas totaling 6 acres (<1 percent of the Survey Area) were identified in the Survey Area. The land use history of these areas is unknown, but it is possible that they were historically dry-mesic savanna that had trees cleared, leaving the forb-dominated prairie-like community that exists today.

Three of the dry-mesic prairie remnant areas lack the community structure and species composition, particularly the native prairie grasses, of a typical dry-mesic prairie, and thus were considered to be low quality natural areas (grade C- to D). Two of these dry-mesic prairie remnants were located at milepost 5.4 in the northern half of the Illiana Corridor, and the third was located between milepost 4.4 and 4.5 in the northern half of the Illiana Corridor. All of these areas were located within shrubland. Characteristic prairie species within these low quality dry-mesic prairie remnants included heath aster (*Aster ericoides*), old-field panic grass, old-field goldenrod, and stiff goldenrod. Other characteristic species in these areas included redtop* (*Agrostis alba*), plains three-awn grass (*Aristida oligantha*), hairy aster (*Aster pilosus*), poverty oat grass (*Danthonia spicata*), Autumn olive*, tall fescue*, Japanese bush clover* (*Lespedeza striata*), Kentucky blue grass*, multiflora rose*, poison ivy, and tall goldenrod. Additional species of interest observed in these areas included slim-spiked three-awn grass (*Aristida longespica*), short green milkweed (*Asclepias viridiflora*, one individual observed), New England aster (*Aster novae-angliae*), arrow-leaved aster, panicled tick trefoil, and savanna blazing star (*Liatris scariosa* var. *nieuwlandii*, one individual observed). These dry-mesic prairie remnants were within larger fields of tall goldenrod but clearly had less tall goldenrod and as a result higher species richness than the tall goldenrod-dominated forblands.

Another of the dry-mesic prairie remnants was low quality and severely degraded (grade D-). This prairie was located between milepost 5.9 and 6.1 in the northern half of the Illiana Corridor, surrounding two water treatment basins. Little bluestem, which typically is one of the dominant species in dry-mesic prairies, was dominant in this area; other dominant species included Siberian elm* (*Ulmus pumila*), Queen Anne's lace*, and tall goldenrod. Characteristic species observed at this location that typically are found in prairies included heath aster, old-field goldenrod, false sunflower (*Heliopsis helianthoides*), Canada wild rye (*Elymus canadensis*), New England aster, Indian grass, switch grass, and yellow coneflower. Other characteristic species observed here included Canada goldenrod, red cedar, common blackberry, wild strawberry, reed canary grass* (*Phalaris arundinacea*), English plantain* (*Plantago lanceolata*), white sweet clover* (*Melilotus alba*), yarrow*, common evening primrose (*Oenothera biennis*), multiflora rose*, old witch grass (*Panicum capillare*), yellow foxtail* (*Setaria glauca*), common teasel* (*Dipsacus sylvestris*), Autumn olive*, Canada blue grass* (*Poa compressa*), and common ragweed (*Ambrosia artemisiifolia* var. *elatior*).

Two good quality but somewhat degraded (grade B-) dry-mesic prairie remnants were present between milepost 5.4 and 5.5 in the northern half of the Illiana Corridor (Figure 4-10). These areas showed signs of fire suppression through the encroachment of shrubs and tall goldenrod. Characteristic prairie species in these remnants included little bluestem, heath aster, smooth blue aster, round-headed bush clover, savanna blazing star, old-field panic grass, prairie dock, old-field goldenrod, and stiff goldenrod. Other species characteristic of these areas included broom sedge*, plains three-awn grass, poverty oat grass, Autumn olive*, tall fescue*, field hawkweed* (*Hieracium caespitosum*), Canada blue grass*, and tall goldenrod. Additional prairie and savanna plant species of interest in these dry-mesic prairie remnants included slender false foxglove (*Agalinis tenuifolia*), beaked agrimony (*Agrimonia rostellata*), pussy toes (*Antennaria* sp., either *Antennaria plantaginifolia* or *Antennaria parlinii*), short green milkweed, willow aster (*Aster praealtus*), downy green sedge (*Carex swanii*), partridge pea (*Cassia fasciculata*), New Jersey tea (*Ceanothus americanus*), tall coreopsis (*Coreopsis tripteris*), American hazelnut (*Corylus americana*), rattlesnake master, rough blazing star, pale spiked lobelia (*Lobelia spicata*), lance-leaved loosestrife (*Lysimachia lanceolata*), wild bergamot, wild quinine (*Parthenium integrifolium*), purple prairie clover (*Petalostemum purpureum*), field milkwort (*Polygala sanguinea*), yellow coneflower, black-eyed Susan (*Rudbeckia hirta*), Indian grass, nodding ladies' tresses (*Spiranthes cernua*), and arrow-leaved violet (*Viola sagittata*). Some of the prairie species, such as smooth blue aster, heath aster, savanna blazing star, round-headed bush clover, old-field goldenrod, and stiff goldenrod, were also scattered throughout the surrounding tall goldenrod-dominated forbland. An additional species of interest in these areas that does not typically grow with prairie species , though it has been noted as growing with big bluestem in Cook County, Illinois and with dry-mesic prairie species in Will County, Illinois (Swink and Wilhelm 1994) was trailing ground pine (*Lycopodium complanatum* var. *flabelliforme*). Because this dry-mesic prairie remnant had good floristic quality, a more complete botanical inventory was recorded, and results can be found in Appendix E. Results of the inventory yielded a mean C value of 2.9 (native mean C value = 4.1) and an FQI of 28.9 (native FQI = 34.1). Swink and Wilhelm (1994) state that sites with mean C values of 3.5 or higher or FQI of 35 or higher likely are of at least marginal natural area quality.

Figure 4-10. Good Quality Dry-mesic Prairie

4.3.3 Savanna

Savannas, by definition, have between 10 percent and 80 percent canopy coverage and grassy (often prairie-like) groundcover (White 1978; Jacquart et al. 2002). For the purposes of this report, areas that appear to historically have been savannas and that are in transition to forest communities, but that have not yet developed a true forest understory and that have retained the historic savanna structure consisting of large open grown trees (despite having filled in with smaller trees that are more closely spaced) are treated as savannas. Grading takes into account the lack of necessary disturbance to maintain this fire-adapted community. A better description of the savannas within the Survey Area at their current state is probably woodland, as they are intermediate between savanna and forest, but in an effort to grade communities based on the classifications mentioned previously they are being considered savannas. Savanna (in this sense) covers 67 acres (2 percent) of the Survey Area (Table 4-2). Dry-mesic savanna was the only savanna community represented within the Survey Area (Table 4-3).

4.3.3.1 Dry-mesic Savanna

Dry-mesic savanna is essentially intermediate between dry-mesic upland forest and dry-mesic prairie, with the soil moisture of the former and the grass height and herbaceous species composition of the latter (White 1978). Within this natural community in northern Indiana and Illinois, dominant species typically include white oak, bur oak, black oak, little bluestem, Indian grass, and porcupine grass; characteristic species often include American hazelnut, wild quinine, common carrion flower (*Smilax lasioneura*), and starry campion (White 1978).

Nine dry-mesic savanna areas were identified within the Survey Area, totaling 67 acres (2 percent). Fire suppression and spread of invasive species have led to degradation of the dry-mesic savanna communities within the Survey Area, but these areas still retain characteristics of pre-settlement dry-mesic savannas. Other areas similar in composition included in the dry-mesic upland forest cover type no longer have the open growth trees

characteristic of a savanna and have developed a forest understory, but it is possible that the identified dry-mesic upland forest areas were savanna when natural and anthropogenic fires were more frequent. Similarly, the dry-mesic prairie areas show signs that they might have been dry-mesic savanna historically; if this was the case, trees have been removed, and thus they are being discussed in the dry-mesic prairie section of this report.

The dry-mesic savanna present within the Survey Area ranges from medium to low quality (grade C to D-) (Figure 4-11) as a result of fire suppression leading to structural changes to the community, and as a result of invasion by non-native species. Some locations had better savanna structure than others, and some areas were essentially wide fencerows with savanna remnant species and structure. Abundance of invasive species also varied, but all areas contained at least a moderate amount of cover by invasive species. Dry-mesic savanna was identified at several locations within the Survey Area. Specifically, a low quality (grade D) dry-mesic savanna polygon was located along the north side of the Survey Area between milepost 4.2 and 4.4, a medium to low quality (ranging from grade C- to grade D) dry-mesic savanna was noted spanning the width of the Survey Area between milepost 5.2 and 5.4, and numerous fragmented pockets of medium to low quality (ranging from grade C to grade D-) dry-mesic savanna were identified between milepost 9.3 and 10.2. With the exception of the area on the north side of the Survey Area at milepost 9.4 and the area near the middle of the Survey Area at milepost 9.8, the dry-mesic savanna can be characterized as being dominated by combinations of shagbark hickory, Osage orange*, wild black cherry, white oak, shingle oak, bur oak, red oak, and black oak in the canopy and subcanopy and amur honeysuckle* and multiflora rose* in the shrub stratum. Additional characteristic species at various locations in these areas included white mulberry*, box elder, red pine (*Pinus resinosa*, planted), white pine (planted), hawthorn (*Crataegus* sp.), and staghorn sumac in the canopy and subcanopy, gray dogwood, common blackberry, Japanese barberry*, American hazelnut, Yankee blackberry, Tartarian honeysuckle* (*Lonicera tatarica*), and Autumn olive* in the shrub layer, poison ivy, Virginia creeper, and riverbank grape in the woody vine layer, and side-flowering aster (*Aster lateriflorus*), aster (*Aster* sp., either *A. sagittifolius*, *A. sagittifolius* var. *drummondii*, or *A. cordifolius*), Virginia wild rye, agrimony (*Agrimonia* sp., possibly *A. gryposepala*), elm-leaved goldenrod (*Solidago ulmifolia*), hairy wood sedge, common oak sedge, silky wild rye (*Elymus villosus*), garlic mustard*, white avens, woodland knotweed (*Polygonum virginianum*), hairy wild licorice (*Galium circaezans* var. *hypomalacum*), white snakeroot, Canada wild rye, cocklebur* (*Xanthium strumarium*), and white vervain (*Verbena urticifolia*) in the herbaceous layer. Common wood reed (*Cinna arundinacea*), white grass (*Leersia virginica*), wild geranium, and winged euonymus* (*Euonymus alatus*) were also noted in less abundance in a few of the dry-mesic savanna areas.

The dry-mesic savanna community identified at milepost 9.8 was low quality and highly degraded (grade D). It consisted of similar species composition to the other dry-mesic savanna areas, with white oak, as the dominant canopy species and Autumn olive* and multiflora rose* dominant in the shrub layer; however, white oak was the only large tree species present. Other characteristic species in this area, all in the shrub and herbaceous

strata, included red pine (planted), red oak, wild black cherry, shagbark hickory, common blackberry, Japanese barberry*, poison ivy, Virginia creeper, common oak sedge, and white snakeroot.

Figure 4-11. Degraded Dry-mesic Savanna

The dry-mesic savanna community identified at milepost 9.4 was dominated by bur oak and white oak in the canopy and Kentucky blue grass* in the herbaceous layer. This area was low quality (grade D) and was incidentally artificially maintained as a savanna by grazing livestock under a savanna canopy.

4.3.4 Wetland

Wetlands comprised 189 acres (5 percent) of the Survey Area (Table 4-2) and consisted of varying cover types including emergent, shrub-scrub, and forested wetlands. Wetlands consist of areas dominated by hydrophytic vegetation that also have wetland hydrology and hydric soils. Natural area quality of wetlands was not graded as part of this project. See the *Illiana Corridor Preliminary Regulated Wetland and Waters Delineation Report* (2013) for detail on wetlands cover types, composition, and natural area quality.

4.3.5 Stream, Lake, and Pond

The stream, lake, and pond land cover type covers 70 acres (2 percent) of the Survey Area (Table 4-2). This land cover type consists of areas with permanent flowing or standing open water that lacks emergent, woody, or graminoid vegetation cover (White 1978; Jacquart 2002). No lakes or rivers were identified; this cover type was comprised only of creeks and ponds (Table 4-3). Areas mapped as this land cover type were not graded as part of this project.

4.3.5.1 Creek

A creek is defined by White (1978) as a stream with a watershed of less than 200 square miles. Jacquart et al. (2002) primarily use size to distinguish between a creek and a river, with creek having and average width of up to 20 feet.

Three major creeks (West Creek between milepost 9.8 and 10.7, Cedar Creek between milepost 5.2 and 5.3, and Spring Run between milepost 2.7 and 3.1) and several smaller creeks were identified within the Survey Area. The creek cover type is discussed in more detail in the *Illiana Corridor Preliminary Regulated Wetland and Waters Delineation Report* (2013).

4.3.5.2 Pond

A pond is defined by White (1978) as a shallow, small, still, permanent body of water. Jacquart et al. (2002) primarily use size to distinguish between a lake and a pond, with ponds generally being up to 20 acres in size. Whereas lakes have deep enough water to produce wave-swept barren shores, ponds are smaller and shallower and lack wave-swept barren zones around their periphery (White 1978). Characteristic species in this natural cover type in northern Indiana and Illinois typically include yellow pond lily (*Nuphar advena*), white water lily (*Nymphaea tuberosa*), pondweed (*Potamogeton* spp.), great duckweed (*Spirodela polyrrhiza*), duckweed (*Lemna* spp.), and water heartsease (*Polygonum* spp.) (White 1978).

For the purposes of this report, ponds include both natural and man-made water bodies that have the characteristics above. The pond cover type is discussed in more detail in the *Illiana Corridor Preliminary Regulated Wetland and Waters Delineation Report* (2013).

4.3.6 Cultural

Cultural land cover types make up the greatest percentage of the Survey Area (3254 acres; 85 percent) (Table 4-2). Cultural communities include those areas created by anthropogenic disturbance (White 1978) and include cropland, pasture and hayland, successional field, successional woodland, prairie restoration/planting, fencerow, tree plantation, and developed land (Table 4-3). Areas mapped as this land cover type were not graded as part of this project but are considered grade D or E by nature.

4.3.6.1 Cropland

Cropland is defined as areas of row crops and forage crops (White 1978). Monocultures of corn* (*Zea mays*) and soybean* (*Glycine max*) are often present within this cultural community in northern Indiana and Illinois. Other crops such as wheat* (*Triticum aestivum*), other small grains, and miscellaneous fruits and vegetables are usually present to a lesser extent. Agricultural weeds such as common chickweed (*Stellaria media*) and butterweed (*Senecio glabellus*) were also common in these fields, especially in early spring before fields had been tilled.

Cropland comprised 2072 acres (54 percent) of the Survey Area (Table 4-3). The cropland cover type was primarily comprised of corn (Figure 4-12) and soybean. Alfalfa* (*Medicago sativa*) and wheat made up a very small percentage of the cropland cover type.

Figure 4-12. Cropland

An area that appeared to have been planted as a food plot for deer was identified in the southern half of the Survey Area between milepost 4.6 and 4.8. This area was characterized by dense white clover* (*Trifolium repens*) with less abundant reed canary grass* (Figure 4-13). Because it appeared to have been planted for forage, this area was included in the cropland cover type.

Figure 4-13. White Clover* and Reed Canary Grass* Planted Forage Area

4.3.6.2 Pasture and Hayland

Pasture and hayland is defined as open, pastured land, but does not include pastured forests (White 1978). This community in northern Illinois and Indiana is often comprised of non-native cool season grasses as well as forbs characteristic of ruderal areas.

Pasture and hayland areas comprised 71 acres (2 percent) of the Survey Area (Table 4-3). Characteristic plant species throughout most of the pasture and hayland cover type areas included tall fescue*, orchard grass*, yellow foxtail*, Queen Anne's lace*, English plantain*, bull thistle* (*Cirsium vulgare*), red clover* (*Trifolium pratense*), white clover*, hairy aster, chicory* (*Cichorium intybus*), alfalfa*, field thistle*, tall goldenrod, field garlic* (*Allium vineale*), wild strawberry (*Fragaria virginiana*), sweet clover* (*Melilotus* sp.), Hungarian brome*, and Kentucky blue grass*. Other less frequent pasture and hayland species included barnyard grass (*Echinochloa crusgalli*), curly dock* (*Rumex crispus*), white mulberry*, honey locust, green amaranth (*Amaranthus hybridus*), lamb's quarters* (*Chenopodium album*), common ragweed, reed canary grass*, switch grass, common dandelion* (*Taraxacum officinale*), old-field goldenrod, common wood sedge (*Carex blanda*), rough avens (*Geum laciniatum* var. *trichocarpum*), yarrow*, Osage orange*, sawtooth sunflower, and tansy* (*Tanacetum vulgare*).

4.3.6.3 Successional Field

The successional field cover type includes abandoned fields and abandoned pastures (White 1978), as well as other herbaceous or shrub-dominated communities that have resulted from anthropogenic activities that as a result do not fit into other community classifications. This community in northern Illinois and Indiana is often comprised of a mix of non-native cool season grasses as well as forbs characteristic of ruderal areas and invasive shrubs. For the purposes of this report, successional field was separated into three categories: non-native grassland, forbland, and shrubland.

Non-native Grassland

Non-native grassland is a variant of successional field that comprised 138 acres (4 percent) of the Survey Area (Table 4-3). Areas categorized as non-native grassland were dominated primarily by planted or naturalized non-native grass species (Figure 4-14). Mowed lawns were not included in the non-native grassland cover type but instead were mapped as developed land. However, mowed fields not associated with residences or businesses were included as non-native grassland. Non-native grassland areas were likely formerly agricultural or cultural lands that are undergoing succession. Grasses most commonly observed in the non-native grassland cover type included quack grass* (*Agropyron repens*), giant foxtail* (*Setaria faberi*), Kentucky blue grass*, orchard grass*, tall fescue*, Hungarian brome*, and yellow foxtail*. Other grasses observed at various locations in this cover type included redtop*, reed canary grass*, brome* (*Bromus* sp.), wheat*, barnyard grass, knee grass (*Panicum dichotomiflorum*), old witch grass, and timothy* (*Phleum pratense*). Some of the more abundant additional species observed in non-native grassland included silver maple, wild parsnip*, field thistle*, Autumn olive*, multiflora rose*, tall goldenrod, elderberry, amur honeysuckle*, panicled aster, Queen Anne's lace*, common dandelion*, red clover*, common plantain* (*Plantago major*), English plantain*, ox-eye daisy* (*Chrysanthemum leucanthemum* var. *pinnatifidum*), white clover*, common milkweed (*Asclepias syriaca*), swamp agrimony (*Agrimonia parviflora*), common ragweed, water heartsease (*Polygonum coccineum*), creeping Charlie*, hairy aster, rush (*Juncus* sp., possibly *J. dudleyi*), brown fox sedge (*Carex vulpinoidea*), blackberry, box elder, giant ragweed, white sweet clover*, yarrow*,

tall nettle (*Urtica procera*), pokeweed, staghorn sumac, false sunflower, Canada goldenrod, and common beggar's ticks (*Bidens frondosa*). A few prairie and savanna remnant species were observed in the non-native grasslands between mileposts 4.2 and 4.5, at milepost 5.5, and near the middle of the Survey Area between milepost 5.8 and 6.2. These included tall coreopsis, heath aster, plains three-awn grass, old-field goldenrod, white wild indigo (*Baptisia leucantha*), wild quinine, prairie dock, and compass plant. In the non-native grassland on the south side of the Survey Area at milepost 5.2, a few savanna understory species, as well as a few prairie species, were observed in the mowed field. These included cat's foot (*Antennaria neglecta*), poverty oat grass, common mountain mint (*Pycnanthemum virginianum*), stiff goldenrod, and arrow-leaved violet. This area was also interspersed with scattered planted apple* trees.

Figure 4-14. Non-native Grassland with Scattered Prairie Species

Forbland

Forbland is a variant of successional field that comprised 98 acres (3 percent) of the Survey Area (Table 4-3). Areas categorized as forbland were dominated primarily by forb species both native and non-native to the Chicago region; however, these areas are in an early state of succession and are not representative of any natural community (Figure 4-15). These areas were likely formerly agricultural or cultural lands that are undergoing succession. Forbland was similar to areas categorized as shrubland, but generally forbland contained less than 25 percent cover by shrub species. Dominant species within areas characterized as forbland varied substantially depending in part upon soil moisture. Forbs commonly observed in many of the forbland areas included tall goldenrod, Canada goldenrod, Queen Anne's lace*, hairy aster, common ragweed, swamp agrimony, giant ragweed, sawtooth sunflower, field thistle*, panicled aster, common dandelion*, hairy grass-leaved goldenrod, red clover*, New England Aster, wild strawberry, and Indian hemp (*Apocynum cannabinum*). Other forb species observed less frequently in forbland areas included common plantain*, tall agrimony, velvetleaf* (*Abutilon theophrasti*), chicory*, an unidentifiable mustard* (*Brassica* sp.), white clover*,

common teasel*, English plantain*, crown vetch* (*Coronilla varia*), sweet clover*, lamb's quarters*, alfalfa*, a heart-leaved aster (either *Aster sagittifolius*, *A. sagittifolius* var. *drummondii*, or *A. cordifolius*), late goldenrod (*Solidago gigantea*), cut-leaved teasel* (*Dipsacus laciniatus*), horseweed (*Erigeron canadensis*), common evening primrose, tall blue lettuce (*Lactuca biennis*), and hedge bindweed (*Convolvulus sepium*). Grasses were also common in the forblands, the most common of these being tall fescue*, Canada blue grass*, Kentucky blue grass*, timothy*, orchard grass*, Hungarian brome*, and giant foxtail* in drier areas and reed canary grass*, redtop*, barnyard grass, knee grass, and common reed (*Phragmites australis*) in wetter areas. Shrubs were scattered throughout the forbland areas and were more concentrated into shrubby pockets in some places. Characteristic shrubs and saplings included Autumn olive*, honeysuckle*, gray dogwood, blackberry, common dewberry (*Rubus flagellaris*), American plum (*Prunus americana*), multiflora rose*, staghorn sumac, common blackberry, black raspberry, amur honeysuckle*, silver maple, wild black cherry, Osage orange*, black walnut, white mulberry*, eastern cottonwood, bur oak, and red cedar. Scattered woody vines including poison ivy and riverbank grape were also noted in some of the forbland areas. Crop species such as corn were present in some of the forbland areas, indicating that some fields had likely only recently been left fallow. Wetland species including rush (*Juncus* sp., possibly *J. dudleyi*), cinnamon willow herb (*Epilobium coloratum*), slender false foxglove, dark green rush (*Scirpus atrovirens*), wool grass (*Scirpus cyperinus*), and hybrid cattail (*Typha* x *glauca*) were amongst the characteristic species in the forblands at milepost 8.0 where soil moisture was greater. Sparse coverage by prairie remnant species, including prairie dock, big bluestem, switch grass, common mountain mint, ironweed (either *Vernonia altissima* var. *taeniotricha* or *V. missurica*), heath aster, and old-field goldenrod, was noted in several forbland areas (Figure 4-16). These included the forbland in the south half of the Survey Area at milepost 2.9, the forbland surrounded by fencerow and shrubland in the south half of the Survey Area at milepost 3.0, the small peninsula of forbland within a larger non-native grassland in the north half of the Survey Area between milepost 3.3 and 3.4, and the forbland between milepost 4.0 and 4.3.

Figure 4-15. Forbland

Figure 4-16. Forbland with Scattered Prairie Species

Shrubland

Shrubland is a variant of successional field that comprised 90 acres (2 percent) of the Survey Area (Table 4-3). Areas categorized as shrubland were dominated primarily by shrubs and saplings of species both native and non-native to the Chicago region; however, these areas are in an early state of succession and are not representative of any natural community (Figure 4-17). Shrubland was similar to areas categorized as forbland, but generally shrubland had greater than 25 percent cover by shrub species. In fact, some areas superficially appeared to be forbland until the taller forbs were pushed aside to see the shrub layer beneath, typically consisting of blackberry and multiflora rose*. Like the forbland, these areas were likely formerly agricultural or cultural lands, and species composition within areas characterized as shrubland varied depending in part upon soil moisture. Characteristic shrubs and saplings in the shrubland areas

included box elder, amur honeysuckle*, white mulberry*, honeysuckle*, multiflora rose*, black raspberry, blackberry, Autumn olive*, wild black cherry, red cedar, smooth sumac, staghorn sumac, eastern cottonwood, gray dogwood, Osage orange*, hawthorn, ash (*Fraxinus* sp.), black walnut, shingle oak, and hickory (*Carya* sp.); sandbar willow (*Salix interior*), willow (*Salix* sp.), and silky dogwood (*Cornus obliqua*) were prevalent in areas with higher soil moisture. Herbaceous species frequently observed in the shrubland areas were similar to those in the forbland and included tall goldenrod, Canada goldenrod, hairy aster, tall fescue*, Queen Anne's lace*, common dandelion*, field thistle*, pasture thistle, common ragweed, wild strawberry, giant ragweed, sawtooth sunflower, Hungarian Brome*, hairy grass-leaved goldenrod, Kentucky blue grass*, orchard grass*, quack grass*, panicled aster, late goldenrod, an unidentifiable blue grass* (*Poa* sp., maybe *P. compressa*), tall agrimony, and reed canary grass*. Other herbaceous species observed in shrubland less frequently included garlic mustard*, stickseed (*Hackelia virginiana*), pokeweed, white avens, arrow-leaved aster, Drummond's aster (*Aster sagittifolius* var. *drummondii*), clearweed (*Pilea pumila*), common burdock*, tall nettle, and enchanter's nightshade (*Circaea lutetiana* var. *canadensis*). Swamp agrimony, brown fox sedge, wool grass, and ironweed were noted in areas with higher soil moisture. Woody vines including Virginia creeper, poison ivy and riverbank grape were also observed frequently in the shrubland areas. Sparse coverage by prairie remnant species, including switch grass, old-field goldenrod, heath aster, field milkwort (*Polygala sanguinea*), old-field panic grass, New England aster, and false sunflower, was noted in the shrubland near the middle of the Survey Area at milepost 3.1, in the shrubland between mesic prairie in the north half of the Survey Area between milepost 5.1 and 5.2, in the shrublands between milepost 5.2 and 5.6, and in the shrubland between milepost 9.8 and 10.1. In a moist to wet shrubland area located in the north half of the Survey Area between milepost 5.3 and 5.4, sparse and scattered bottle gentian (*Gentiana andrewsii*), weak St. John's wort (*Hypericum mutilum*), and foxglove beard tongue (*Penstemon digitalis*) were observed, indicating the potential presence of an historic wet-mesic prairie at this location. Some small areas of forbland were included in the shrubland classification at this location. In addition, a few large scattered trees were noted in the shrubland near the middle of the Survey Area between milepost 3.2 and 3.3 and between milepost 2.7 and 2.8; the latter area also included several mowed pockets. The Shrubland just south of the middle of the Survey Area between milepost 10.2 and 10.5 was located within a powerline utility corridor.

Figure 4-17. Shrubland

4.3.6.4 Successional Woodland

The successional woodland cover type includes heavily degraded tree-dominated communities that have resulted from anthropogenic activities and that as a result do not fit into other community classifications. These areas were so heavily degraded that there was no semblance to a natural community, whereas heavily degraded dry-mesic upland forest, for example, still retains some of the characteristic species of that community. In some cases, this categorization may include former successional fields that have developed a tree canopy.

Successional woodland comprised 70 acres (2 percent) of the Survey Area (Table 4-3). Due to differences in soil moisture and age, each of the mapped successional woodlands was quite unique in its species assemblage (Figure 4-18). Some areas contained a large percentage of early successional native species, whereas others had decent forest structure but were comprised almost entirely of non-native species. Canopy and subcanopy trees included peach-leaved willow, Siberian elm*, apple* (*Malus* sp.), white pine, red pine, eastern white cedar, red pine, Austrian pine* (*Pinus nigra*), scrub pine*, basswood, white mulberry*, gray poplar*, tree-of-heaven* (*Ailanthus altissima*), wild black cherry, box elder, honey locust (*Gleditsia triacanthos*), black locust*, Osage orange*, catalpa* (*Catalpa bignonioides*), eastern cottonwood, silver maple, shingle oak, silver maple, and black walnut. Characteristic shrub layer species included gray dogwood, smooth sumac, amur honeysuckle*, honeysuckle*, Autumn olive*, choke cherry, multiflora rose*, silky dogwood, hawthorn (*Crataegus* sp.), blackberry, black raspberry, common St. John's wort* (*Hypericum perforatum*), and nannyberry (*Viburnum lentago*). The herbaceous layer in the successional woodland areas was characterized by common burdock*, common beggar's ticks, horsetail (*Equisetum arvense*), Drummond's aster, clustered black snakeroot (*Sanicula gregaria*), smooth sweet cicely (*Osmorhiza longistylis*), honewort (*Cryptotaenia canadensis*), white avens, common blue violet (*Viola sororia*), enchanter's nightshade, common wood sedge, swamp agrimony, Hungarian brome*, tall goldenrod, white snakeroot, snakeroot (*Sanicula* sp.), wild strawberry, common

dandelion*, swamp agrimony, reed canary grass*, arrow-leaved aster, wild onion, and garlic mustard*. Species such as Virginia creeper, poison ivy, and riverbank grape were also noted in the woody vine stratum. In some of the successional woodland areas, typical dry-mesic upland forest ephemerals such as red trillium, May apple, dutchman's breeches, Virginia waterleaf, spring beauty, Burdick's leek, Drummond's aster, and cut-leaved toothwort were noted.

Figure 4-18. Successional Woodland

4.3.6.5 Prairie Restoration/Planting

The prairie restoration/planting cover type has resulted from efforts to restore native prairies by installing seed and plant materials in areas that had been converted from their historic natural community to an anthropogenic community. This cover type in northern Illinois and Indiana is often heavily dominated by prairie grasses including big bluestem, Indian grass, switch grass, little bluestem, and Canada wild rye and includes scattered showy prairie forb species such as wild bergamot, yellow coneflower, black-eyed Susan, broad-leaved purple coneflower (*Echinacea purpurea*), prairie dock, compass plant, rosin weed, and New England aster. These areas differ from the prairie natural communities described in this report because prior to being restored or planted they were a cultural community, whereas the prairie natural communities have been degraded but not entirely converted by anthropogenic activities.

Prairie restoration/planting was present within 16 acres (<1 percent) of the Survey Area (Table 4-3). The prairie restoration/planting area was located near a house and had zones of different dominant species. Characteristic species included Queen Anne's lace*, Kentucky blue grass*, tall goldenrod, tall boneset (*Eupatorium altissimum*), hairy grass-leaved goldenrod, New England aster, hairy aster, Indian grass, broad-leaved purple coneflower, yellow coneflower, wild strawberry, big bluestem, little bluestem, side-oats grama (*Bouteloua curtipendula*), Canada wild rye, black raspberry, switch grass, heath aster, orchard grass*, sawtooth sunflower, honey locust, wild black cherry, common

privet (*Ligustrum vulgare*), starry false Solomon's seal (*Smilacina stellata*), giant ragweed, and poison ivy.

4.3.6.6 Fencerow

The fencerow cover type is present in areas along and between cropland where overgrown vegetation is present or where extremely heavily degraded remnants of forest are present. There is not a defined list of species typically found in fencerows, but Osage orange*, white mulberry*, and poison ivy are often found along fencerows in northern Illinois and Indiana.

Mapped fencerows were present within 93 acres (2 percent) of the Survey Area (Table 4-3). These areas showed no affinity to a natural community. Characteristic species included eastern cottonwood, Osage orange*, bitternut hickory, bur oak, shagbark hickory, honey locust, hawthorn, red oak, gray dogwood, common blackberry, black raspberry, giant ragweed, multiflora rose*, box elder, wild black cherry, sawtooth sunflower, tall goldenrod, side-flowering aster, honeysuckle*, knee grass, amur honeysuckle*, white mulberry*, riverbank grape, a heart-leaved aster (either *Aster sagittifolius*, *A. sagittifolius* var. *drummondii*, or *A. cordifolius*), poison ivy, gray dogwood, Hungarian brome*, garlic mustard*, common burdock* (*Arctium minus*), horseweed, Siberian elm*, lamb's quarters*, velvetleaf*, and elderberry.

4.3.6.7 Tree Plantation

Tree plantations are described by White (1978) as an artificial community characterized by orchards, arboretums, and other areas of planted trees. Species composition can vary substantially within this cover type.

The tree plantation cover type was present within 18 acres (<1 percent) of the Survey Area (Table 4-3). The areas categorized as tree plantation were historic reforestation efforts that have undergone natural succession; however, planted trees were still in obvious rows and were driving the community dynamics (Figure 4-19). Planted trees included scrub pine*, red maple, ash, black walnut, tulip tree (*Liriodendron tulipifera*), red pine, white pine, Norway spruce* (*Picea abies*), swamp white oak, red oak, eastern white cedar. Tree species that have volunteered in this cover type include white mulberry*, red cedar, wild black cherry, and silver maple. Invasive shrubs such as Autumn olive*, amur honeysuckle* and multiflora rose* made up the shrub layer. The herbaceous layer was characterized by arrow-leaved aster, Queen Anne's lace*, garlic mustard*, dame's rocket* (*Hesperis matronalis*), white avens, orchard grass*, and nimblewill (*Muhlenbergia schreberi*). Virginia creeper and poison ivy comprised the woody vine stratum. In places, the understory beneath the tree plantation consisted of mowed lawn. In other spots, pockets of shrubby vegetation were present under the planted trees, with characteristic shrubs and saplings including box elder, amur honeysuckle*, multiflora rose*, and Autumn olive*.

Figure 4-19. Tree Plantation

4.3.6.8 Developed Land

Developed land, as described by White (1978), includes any areas that have been highly modified or those on which structures are located, and includes roadways, buildings, and cemeteries. Additional areas included in the developed land category in this study included lawns, landscaping, hedge rows, etc. The developed land cover type made up 588 acres (15 percent) of the Survey Area (Table 4-3). No dominant or characteristic species were recorded for this cover type.

4.4 Invasive and Noxious Species

A non-native species is one that has been introduced, either intentionally or unintentionally, into an area where it was not known prior to European settlement. Terms used synonymously with non-native include adventive, introduced/introduction, alien, exotic, and non-indigenous. Introductions to the Indiana or Illinois flora can be from areas outside of North America, from other parts of North America, from other areas in the United States, or even from other regions within Indiana or Illinois. An invasive species is one that has the ability to displace existing species once established. Invasive species can be non-native or native.

Various regulations are in place in Indiana regarding invasive plant species. These are included in both the Indiana Code, passed by the Indiana General Assembly, and in the Indiana Administrative Code, developed by state agency administrators. Examples of these regulations can be seen in Table 4-4. The Federal Noxious Weed Act and Plant Protection Act outline requirements for dealing with species considered noxious weeds in the United States.

Table 4-4. Indiana Invasive Species Regulations

Code	Regulation
IC 14-24-12	Prohibits planting of multiflora rose* and selling, planting, and distribution of purple loosestrife* (*Lythrum salicaria*)
IC 15-3-4	Provides means of control for designated noxious weeds
IC 15-3-4.6	Designates noxious weeds
312 IAC 18-3-16	Prohibits selling, planting, and distribution of kudzu* (*Pueraria montana*)
312 IAC 18-3-23	Designates and prohibits selling or transporting of invasive aquatic plants

Indiana State Law identifies five plant species as noxious weeds under IC 15-3-4.6: Canada thistle (aka field thistle)*, Johnson grass* (*Sorghum halepense*), Columbus grass* (*Sorghum almum*), bur cucumber (*Sicyos angulatus*), and shattercane* (*Sorghum bicolor* ssp. *drummondii*). Of these five species, only field thistle* was observed in the Survey Area. The Indiana Invasive Species Council, formed in August 2009, has compiled a list (updated in September 2012) of invasive plant species in Indiana. This list includes 95 plant species ranked into high, medium, low, and caution categories of invasive species. Of the species on this list, 17 of the species with a "high" invasive ranking, six of the species with a "medium" invasive ranking, one of the species with a "low" invasive ranking, and one of the species with a "caution" invasive ranking were observed in the Survey Area. Two additional species on the site are currently being assessed for inclusion in the Indiana Invasive Species Council list of invasive plants in Indiana. Several other species that are often considered invasive but that are not included on any of these lists were also observed. A list of invasive species observed in the Survey Area can be found in Table 4-5.

Table 4-5. Invasive Species in the Survey Area

Latin Name	Common Name	Indiana Invasive Species Council Invasive Plant List Ranking
Agropyron repens	Quack grass*	Not ranked
Ailanthus altissima	Tree-of-heaven*	High
Alliaria petiolata	Garlic mustard*	High
Ambrosia artemisiifolia	Common ragweed	Not ranked
Ambrosia trifida	Giant ragweed	Not ranked
Berberis thunbergii	Japanese barberry*	High
Bromus inermis	Hungarian brome*	Not ranked
Cirsium arvense	Field thistle*	High
Coronilla varia	Crown vetch*	High
Dipsacus laciniatus	Cut-leaved teasel*	High
Dipsacus sylvestris	Common teasel*	High

Latin Name	Common Name	Indiana Invasive Species Council Invasive Plant List Ranking
Elaeagnus umbellata	Autumn olive*	High
Euonymus alatus	Winged euonymus*	Medium
Festuca elatior	Tall fescue*	Medium
Hesperis matronalis	Dame's rocket*	High
Hypericum perforatum	Common St. John's wort*	Low
Lespedeza striata	Japanese bush clover*	Medium
Ligustrum vulgare	Common privet*	Caution
Lonicera maackii	Amur honeysuckle*	High
Lonicera tatarica	Tartarian honeysuckle*	High
Lonicera sp.	Honeysuckle*	High
Lythrum salicaria	Purple loosestrife*	High
Melilotus alba	White sweet clover*	Medium
Melilotus sp.	Sweet clover*	Medium
Morus alba	White mulberry*	High
Pastinaca sativa	Wild parsnip*	Not ranked
Phalaris arundinacea	Reed canary grass*	High
Phragmites australis	Common reed	High
Rhamnus cathartica	Common buckthorn*	High
Rosa multiflora	Multiflora rose*	High
Tanacetum vulgare	Tansy*	Not ranked
Typha x glauca	Hybrid cattail	Being Assessed
Ulmus pumila	Siberian elm*	Medium
Viburnum opulus	European highbush cranberry*	Being Assessed

The abundance and distribution of each of the invasive species observed in the Survey Area is described in the sections below.

4.4.1 Quack Grass*

Quack grass*, a perennial graminoid species of European origin (Swink and Wilhelm 1994), was observed as a characteristic species in the successional field – non-native grassland and successional field – non-native shrubland areas. It was present in many of the non-native grasslands and other cultural communities within the Survey Area.

4.4.2 Tree of Heaven*

Tree-of-heaven*, a tree of Asian origin (Swink and Wilhelm 1994), was infrequent in the Survey Area. It was only observed as a characteristic species in the successional woodland cover type.

4.4.3 Garlic Mustard*

Garlic mustard*, a biennial forb species native to Europe (Swink and Wilhelm 1994), was observed as a characteristic species in shaded ground within various cover types and was thus somewhat frequent within the Survey Area. It was noted as characteristic in dry-mesic upland forest, mesic upland forest, mesic floodplain forest, mesic prairie, dry-mesic savanna, successional field - shrubland, successional woodland, fencerow, and tree plantation areas throughout the Survey Area.

4.4.4 Common Ragweed and Giant Ragweed

The native annual forb species common ragweed and giant ragweed (Swink and Wilhelm 1994) were noted as characteristic species in most of the treeless areas within the Survey Area. Specifically, common ragweed was a characteristic species of the mesic prairie, dry-mesic prairie, pasture and hayland, successional field – non-native grassland, successional field – forbland, and successional field – shrubland areas, whereas giant ragweed was characteristic in the successional field – non-native grassland, successional field – forbland, successional field – shrubland, prairie restoration/planting, and fencerow areas. Although they are native and do not tend to aggressively compete with other species (though they are both opportunistic), they are often considered noxious weeds because of the hay fever that results when humans are exposed to their pollen.

4.4.5 Japanese Barberry*

Japanese barberry*, an introduction from Asia (Swink and Wilhelm 1994), was overall fairly uncommon in the Survey Area. This shrub was noted as characteristic in the mesic floodplain forest and dry-mesic savanna communities.

4.4.6 Hungarian Brome*

Hungarian brome*, introduced from Europe (Swink and Wilhelm 1994), was abundant within the Survey Area. As would be expected, this perennial grass was found in most of the treeless areas on the site, but it was also rather abundant in some of the forested areas. It was considered characteristic in the dry-mesic upland forest, mesic prairie, pasture and hayland, successional field – non-native grassland, successional field – forbland, successional field – shrubland, successional woodland, and fencerow areas.

4.4.7 Field Thistle*

Field thistle*, an introduced perennial Eurasian forb (Swink and Wilhelm 1994), was fairly abundant where it occurred but was only considered a characteristic species in a few of the treeless areas within the Survey Area. It was considered characteristic in the mesic prairie, pasture and hayland, successional field – non-native grassland, successional field – forbland, and successional field – shrubland areas.

4.4.8 Crown Vetch*

Crown Vetch* was rather uncommon within the Survey Area. It was only noted as a characteristic species within the successional field – forbland area. This is a perennial forb species that was introduced from Europe (Swink and Wilhelm 1994).

4.4.9 Cut-leaved Teasel* and Common Teasel*

Cut-leaved teasel* and common teasel* were both fairly infrequent overall within the Survey Area, though when they were observed they were usually in fairly large populations. Both species are introductions from Europe and are biennial forbs (Swink and Wilhelm 1994). Cut-leaved teasel was a characteristic species in the successional field – forbland areas, and common teasel was a characteristic species in the dry-mesic prairie and successional field – forbland areas.

4.4.10 Autumn Olive*

Autumn olive*, a shrub introduced from Asia (Swink and Wilhelm 1994), was very frequent in the Survey Area, occurring in both shaded and treeless conditions, as well as in both natural communities and cultural areas. In treeless areas, it was often abundant. Autumn olive* was noted as a characteristic species in mesic upland forest, mesic floodplain forest, mesic prairie, dry-mesic prairie, dry-mesic savanna, successional field – non-native grassland, successional field – forbland, successional field – shrubland, successional woodland, and tree plantation areas.

4.4.11 Winged Euonymus*

Winged euonymus* was infrequent in the Survey Area. This shrub, native to Asia (Swink and Wilhelm 1994), was only noted as a characteristic species in the dry-mesic savanna community.

4.4.12 Tall Fescue*

Tall fescue* is a perennial grass introduced from Eurasia (Swink and Wilhelm 1994) that is abundant in the Survey Area. It was noted as a characteristic species in disturbed open areas, such as pasture and hayland, successional field – non-native grassland, successional field – forbland, and successional field – shrubland, but it was also characteristic in the dry-mesic upland forest, the mesic prairie, and the dry-mesic prairie communities in lower levels of abundance.

4.4.13 Dame's Rocket*

Dame's rocket* is a biennial or short-lived perennial forb species introduced to the United States from Europe (Swink and Wilhelm 1994). It is infrequent in the Survey Area, only being noted as a characteristic species in the tree plantation areas.

4.4.14 Common St. John's Wort*

Common St. John's wort*, a native of Europe (Swink and Wilhelm 1994), is relatively infrequent within the Survey Area. This perennial forb is sometimes somewhat woody

at the base. It was only noted as a characteristic species in the successional woodland areas, but it is also often found in successional fields.

4.4.15 Japanese Bush Clover*

Japanese bush clover* is an annual forb species native to Asia (Swink and Wilhelm 1994). It is infrequent within the Survey Area, only being noted as a characteristic species in the dry-mesic prairie community.

4.4.16 Common Privet*

Common privet* is an invasive shrub species introduced to the Chicago region from Europe (Swink and Wilhelm 1994). It is infrequent within the Survey Area and was only noted as a characteristic species in the prairie restoration/planting area. It was also observed in the developed area as a landscaping shrub.

4.4.17 Bush Honeysuckles*

Bush honeysuckles* were abundant within the Survey Area. These invasive shrubs are native to Eurasia (Swink and Wilhelm 1994) and have escaped and become naturalized in almost every non-wetland community, and even in some wetland communities. Amur honeysuckle* was noted as a characteristic species in the dry-mesic upland forest, mesic upland forest, mesic floodplain forest, wet floodplain forest, dry-mesic savanna, successional field – non-native grassland, successional field – forbland, successional field – shrubland, successional woodland, fencerow, and tree plantation areas. Tartarian honeysuckle* was noted as a characteristic species in the dry-mesic savanna community. Unidentifiable bush honeysuckle* species were considered characteristic in the dry-mesic upland forest, mesic upland forest, wet-mesic floodplain forest, successional field – forbland, successional field – shrubland, successional woodland, and fencerow areas, and they were noted in the developed areas as landscaping shrubs.

4.4.18 Purple Loosestrife*

Purple loosestrife* was introduced from Eurasia and has been used as a garden ornamental (Swink and Wilhelm 1994). This invasive perennial forb was uncommon overall in the Survey Area. It was not noted as a characteristic species in any of the upland communities on the site, but it was documented on 3 percent of the wetland data sheets in wetlands within the Survey Area (Cardno JFNew 2013b).

4.4.19 Sweet Clover*

White sweet clover* and yellow sweet clover* (*Melilotus officinalis*) are biennial forbs that were introduced from Asia and Eurasia, respectively (Swink and Wilhelm 1994). These species were overall somewhat uncommon in the Survey Area, occurring primarily in cultural vegetation cover types but also in natural communities. Sweet clover was noted as characteristic in the dry-mesic prairie, pasture and hayland, successional field – non-native grassland, and successional field – forbland areas.

4.4.20 White Mulberry*

White mulberry* is an invasive tree species introduced from Asia (Swink and Wilhelm 1994) that was common in a variety of habitats within the Survey Area. It occurred as a canopy/subcanopy species in some of the forest communities and in the shrub/sapling stratum in some of the more treeless areas. White mulberry* was a characteristic species in the dry-mesic upland forest, mesic floodplain forest, wet floodplain forest, dry-mesic savanna, pasture and hayland, successional field – forbland, successional field – shrubland, successional woodland, fencerow, and tree plantation cover types.

4.4.21 Wild Parsnip*

Wild parsnip* is a biennial forb that was introduced to the United States from Europe (Swink and Wilhelm 1994). It was uncommon within the Survey Area, noted as a characteristic species only in the mesic prairie and successional field – non-native grassland areas.

4.4.22 Reed Canary Grass*

Reed canary grass* was introduced from Eurasia (Swink and Wilhelm 1994). This invasive perennial grass was common in the Survey Area. It was noted as a characteristic species in the wet floodplain forest, dry-mesic prairie, cropland, pasture and hayland, successional field – non-native grassland, successional field – forbland, successional field – shrubland, and successional woodland areas. It was also prevalent in wetlands in the Survey Area, being recorded in 66 percent of the wetland data points (Cardno JFNew 2013b).

4.4.23 Common Reed

Common reed is considered a native species by Swink and Wilhelm (1994). More recent morphological and genetic research has shown there to be three taxa of common reed present in the United States, one of which is native in Indiana and Illinois (*Phragmites australis* ssp. *americanus*), one of which is not known from Indiana or Illinois (*Phragmites australis* var. *berlandieri*), and one of which has been introduced to Indiana and Illinois from Eurasia (*Phragmites australis* ssp. *australis*) (Allred 2003). Although it is treated as native in this report, the taxa present in the Survey Area is the Eurasian perennial grass *Phragmites australis* ssp. *australis*. It was relatively uncommon within the Survey Area, only being noted as a characteristic species within wetter portions of the successional field – forbland area. It was also recorded in 7 percent of the wetland data points within wetland communities in the Survey Area (Cardno JFNew 2013b).

4.4.24 Common Buckthorn*

Common buckthorn* is an invasive shrub that was introduced from Eurasia (Swink and Wilhelm 1994). It was uncommon to rare in the Survey Area, only being documented as a characteristic species in the mesic upland forest community.

4.4.25 Multiflora Rose*

Multiflora rose* was one of the most frequently encountered invasive species in the Survey Area. This invasive shrub was introduced from Asia (Swink and Wilhelm 1994) and occurred in all of the natural communities as well as in most of the cultural communities. Multiflora rose* was listed as a characteristic species in the dry-mesic upland forest, mesic upland forest, mesic floodplain forest, wet-mesic floodplain forest, wet floodplain forest, mesic prairie, dry-mesic prairie, dry-mesic savanna, successional field – non-native grassland, successional field – forbland, successional field – shrubland, successional woodland, fencerow, and tree plantation cover types.

4.4.26 Tansy*

Tansy* is an invasive perennial forb species that was introduced to the United States from Europe (Swink and Wilhelm 1994). It was rare within the Survey Area, only noted as being present in one pasture and hayland unit.

4.4.27 Hybrid Cattail

Hybrid cattail is considered a native species by Swink and Wilhelm (1994) and is the result of hybridization between broad-leaved cattail (*Typha latifolia*) and narrow-leaved cattail (*Typha angustifolia*). Both parents are also considered native species by Swink and Wilhelm (1994), but since that publication research has shown that narrow-leaved cattail is introduced to Indiana and Illinois from the east coast of the United States (Smith 2000). Thus, the hybrid is also now considered an introduced species. It exists as a hybrid swarm that grows primarily in wetlands, but the hybrid has proven to be able to withstand both wetter and drier conditions than either parent. This invasive perennial herbaceous species was documented as a characteristic species in wetter portions of the successional field – forbland cover type, and was also documented at 3 percent of the wetland data points in the wetland communities within the Survey Area (Cardno JFNew 2013b).

4.4.28 Siberian Elm*

Siberian elm* is a tree species introduced from Asia (Swink and Wilhelm 1994). It was somewhat uncommon within the Survey Area and was noted as a characteristic species in the dry-mesic prairie (as a sapling), successional woodland, and fencerow areas.

4.4.29 European Highbush Cranberry*

European highbush cranberry* is an invasive shrub that was introduced to the United States from Europe (Swink and Wilhelm 1994). It was fairly uncommon within the Survey Area, being recorded as a characteristic species in the dry-mesic upland forest and wet floodplain forest communities.

5.0 Discussion

An investigation of the vegetation and cover types within the Survey Area suggests that the area has experienced high levels of development and natural area degradation since

the time of European settlement. The upland areas within the Survey Area consisted largely of cultural cover types, with cropland by far representing the most abundant cover type, followed by developed land. Other cultural communities, such as pasture and hayland, successional fields, and fencerows, were also common. These heavily anthropogenically altered areas made up 85 percent of the Survey Area. Natural communities made up the other 15 percent of the Survey Area, but these primarily existed in a heavily degraded state. As is discussed below, very few areas exhibited good or better natural area quality.

Invasive plant species were common and widespread throughout the Survey Area, both in cultural cover types and in natural communities. Thirty-four (34) species of invasive plants were documented, and these ranged from rare to abundant. Some of the more commonly encountered invasive species included quack grass*, garlic mustard*, common ragweed, giant ragweed, Hungarian brome*, field thistle*, Autumn olive*, tall fescue*, bush honeysuckles*, white mulberry*, reed canary grass*, and multiflora rose*.

Note that wetlands are discussed in detail in the *Illiana Corridor Preliminary Regulated Wetlands and Waters Delineation Report* (2013).

5.1 Areas of Conservation Concern

Most of the Survey Area (3,807 acres; 99 percent) consisted of moderately to heavily degraded habitat (grades C to E) in terms of natural plant communities. Appendix D displays the areas graded as A (relatively stable or undisturbed) or B (late successional or lightly disturbed) natural communities. No A communities were identified within the Survey Area. Communities graded as B totaled 21 acres (1 percent) of the Survey Area. Table 5-1 displays areas of conservation concern.

Table 5-1. Areas of Conservation Concern

Milepost	Area of Survey Area	Reason
0.0	East/northeast of milepost	Grade B- dry-mesic upland forest
5.3-5.5	Middle of Survey Area	Green twayblade (Indiana Watch List)
5.5	North half of Survey Area	Grade B- dry-mesic prairie
6.4-6.5	South half of Survey Area	Grade B mesic prairie

Several pockets of grade B- dry-mesic upland forest were identified to the east/northeast of milepost 0.0 (Appendix D). These areas were within a larger dry-mesic upland forest complex that ranged in quality from good (B-) to heavily degraded (E). The dry-mesic upland forest B- natural communities totaled 19 acres (<1 percent of the Survey Area). See Section 4.3.1.1 for a description of the dry-mesic upland forest community.

Two pockets of grade B mesic prairie were identified along the east side of the railroad tracks between milepost 6.4 and 6.5 (Appendix D). These areas were remnants within

an undeveloped railroad right-of-way that consisted of successional field – forbland, successional field – shrubland, fencerow, and average quality (C-) mesic prairie. The mesic prairie B natural communities totaled approximately 1 acre (<1 percent of the Survey Area). See Section 4.3.2.1 for a description of the mesic prairie community.

Two grade B- dry-mesic prairie remnants were identified within successional field at milepost 5.5 (Appendix D). These small dry-mesic prairie areas totaled 1 acre (<1 percent of the Survey Area). These areas contained a diverse mix of dry-mesic prairie species, including several species not commonly found in northwest Indiana. See Section 4.3.2.2 for a description of the dry-mesic prairie community.

Green twayblade, a plant species listed as Watch List by the Indiana Department of Natural Resources – Division of Nature Preserves, occurred naturally in grade D+ mesic prairie between milepost 5.3 and 5.5. This inconspicuous orchid typically occurs in bogs, calcareous wet prairies, fens, seep wetlands, and mesic prairies, and it often is found in areas with little competition from other plants (Swink and Wilhelm 1994).

6.0 Recommendations

Upland areas within the Survey Area were examined for the presence of high quality natural resources. Most of the Survey Area (99 percent) was comprised of cultural cover types and heavily degraded natural communities. Four high quality natural resources were identified, totaling 1 percent of the 3,828 acres within the Survey Area. These areas are documented in Section 5.1 of this report.

In a heavily fragmented and anthropogenically altered landscape such as that present within the Survey Area, all remnants of natural quality are important for the purpose of conservation of biodiversity and the natural heritage of the region. The dry-mesic upland forest, mesic prairie, and dry-mesic prairie areas identified east/northeast of milepost 0.0, at milepost 5.5, and between milepost 6.4 and 6.5 have significant natural area quality. In addition, green twayblade, identified in degraded mesic prairie between milepost 5.3 and 5.5, is a species of conservation concern (Watch List) in Indiana.

7.0 Citations

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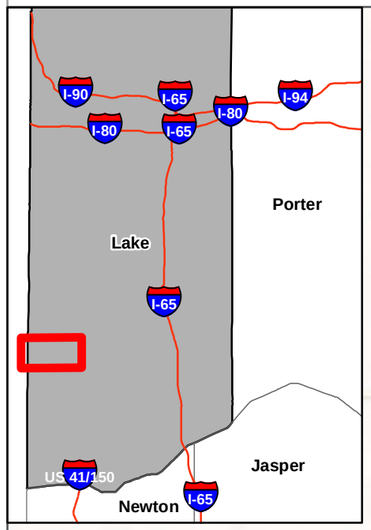
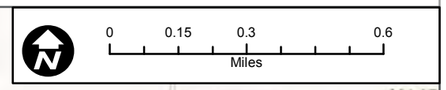
Appendix A

Location Map (Sheets 1 – 3)





State Line Rd
Sheffield Ave
West Creek
W 157th Ave
W 157th Ave
W 157th Pl
Chestnut St
White Oak Ave
Wicker Blvd
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W 165th Ave
West Creek
E Kentucky Rd
W 169th Ave
W 169th Ave
Tapper St
W 171st Pl
E Delite Inn Rd
W 173rd Ave
W 173rd Ave
Maplewood St
West Creek
State Line Rd
58
E 12000N Rd
White Oak Ave
Wicker Blvd
41

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Township:33 N
Range: 8, 9 W
Project No: 1012012

Appendix A: Location Map
Land Cover Report
Illiana Corridor
Lake County, Indiana

0 1,125 2,250 4,500 Feet

- Project Corridor
- Alternative 2 Mainline Option
- Alternative 1 Mainline Option
- Alternative 3 Mainline Option

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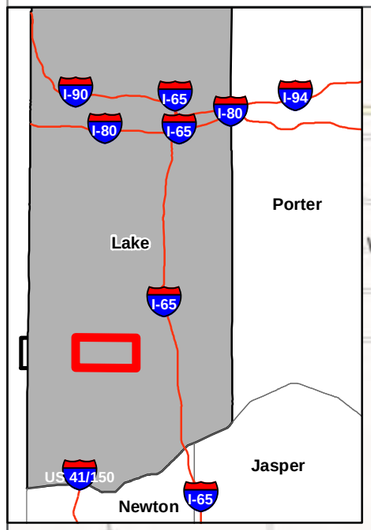

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Township:33 N
Range: 8, 9 W
Project No: 1012012

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Appendix A: Location Map
Land Cover Report
Illiana Corridor
Lake County, Indiana

0 1,125 2,250 4,500 Feet

- Project Corridor
- Alternative 2 Mainline Option
- Alternative 1 Mainline Option
- Alternative 3 Mainline Option

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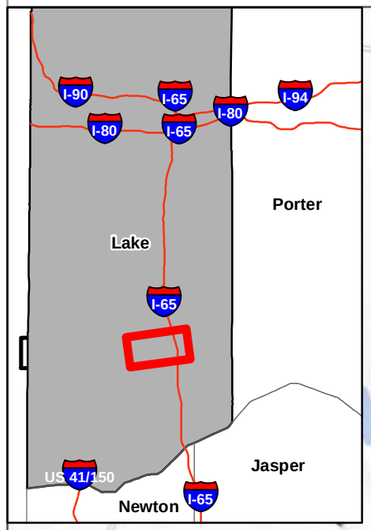

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Township:33 N
Range: 8, 9 W
Project No: 1012012

Appendix A: Location Map
Land Cover Report
Illiana Corridor
Lake County, Indiana

0 1,125 2,250 4,500 Feet

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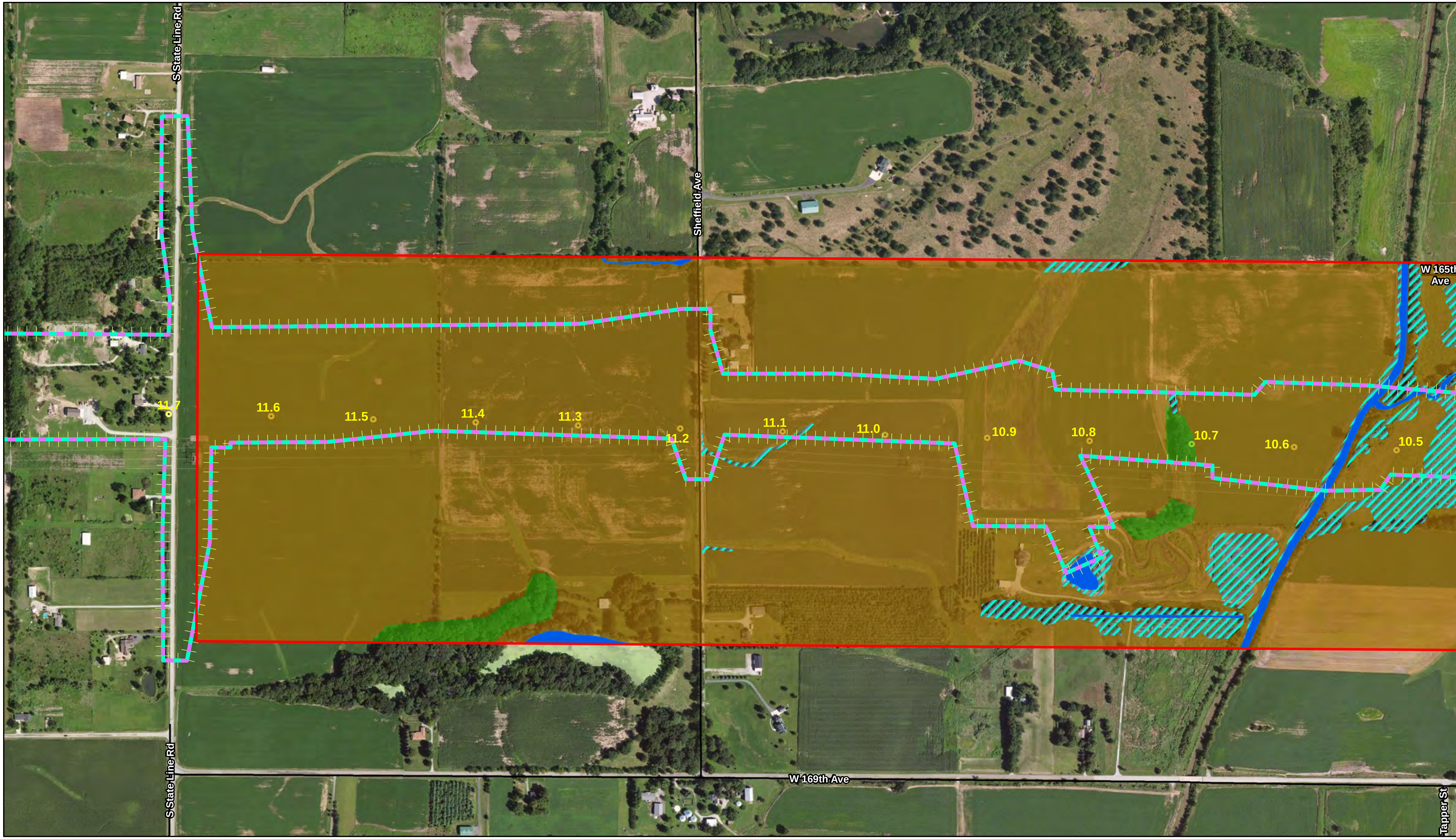
GIS Analyst: christine.dittmar

Appendix B

Land Cover Map (Sheets 1 – 19)



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Township:33 N
Range: 8, 9 W
Project No: 1012012

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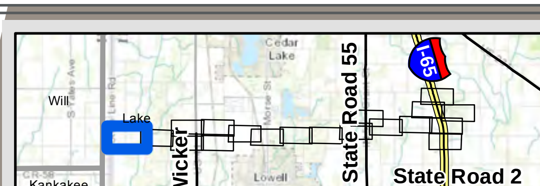

Appendix B: Land Cover Maps
Land Cover Report
Illiana Corridor
Lake County, Indiana

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0 300 600 1,200 Feet

Legend
- Project Corridor
- Alternative 1 Mainline Option
- Alternative 2 Mainline Option
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- Forest
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- Savanna
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- Stream, Lake and Pond
- Cultural

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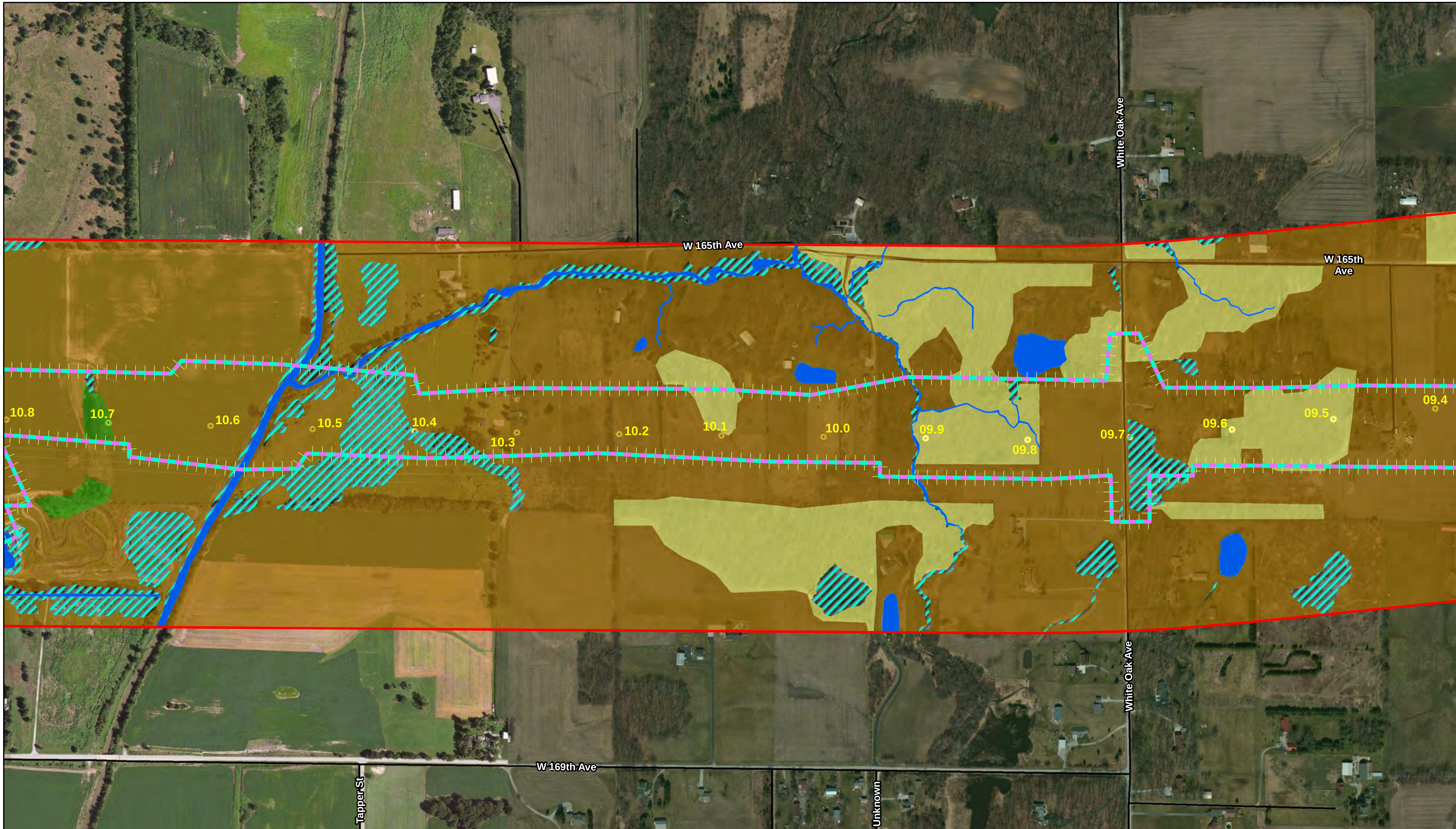

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Township:33 N
Range: 8, 9 W
Project No: 1012012

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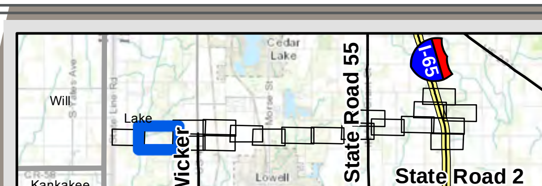

Appendix B: Land Cover Maps
Land Cover Report
Illiana Corridor
Lake County, Indiana

0 300 600 1,200 Feet

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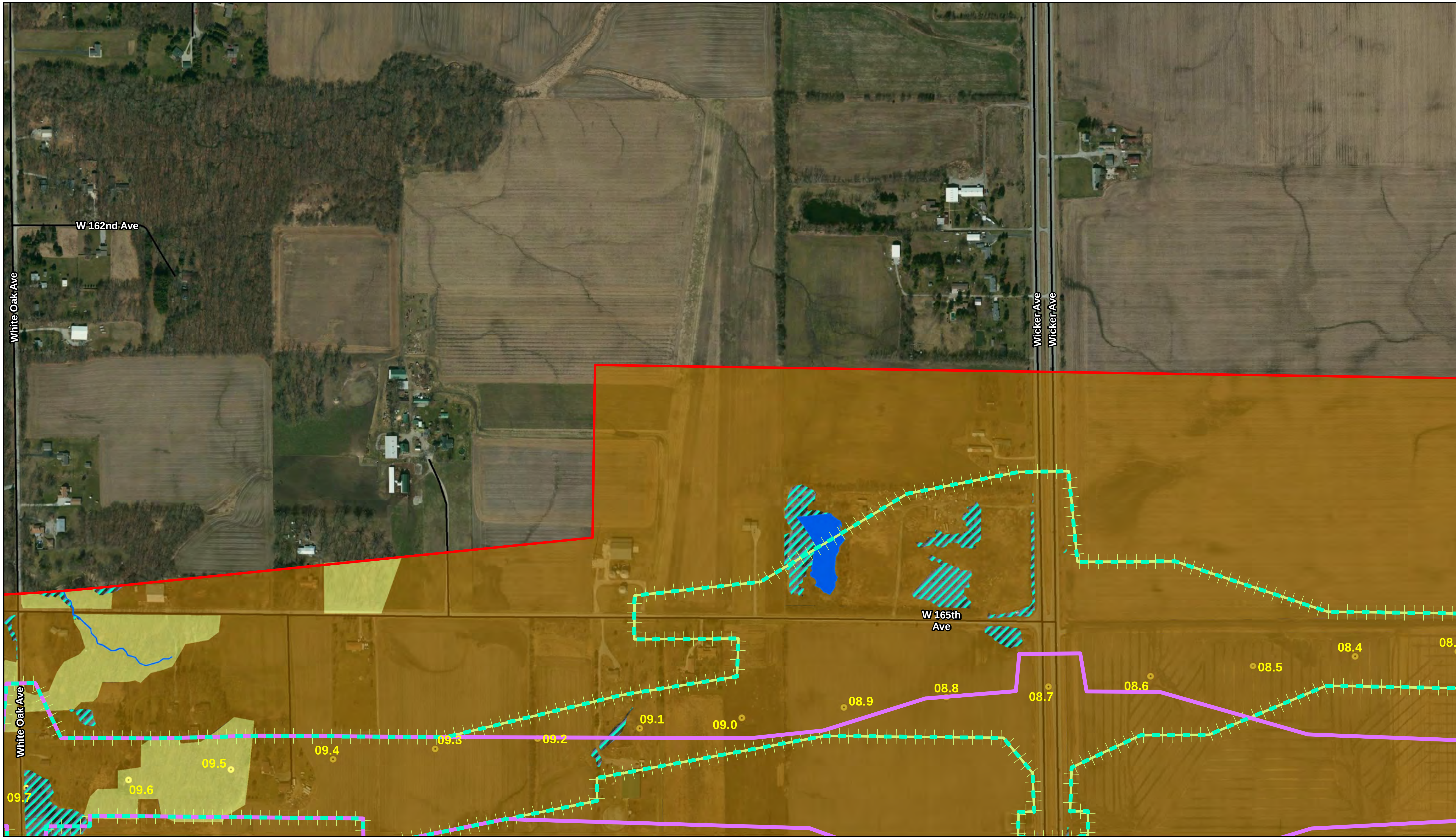

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Township:33 N
Range: 8, 9 W
Project No: 1012012

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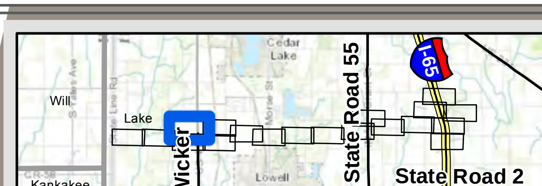

Appendix B: Land Cover Maps
Land Cover Report
Illiana Corridor
Lake County, Indiana

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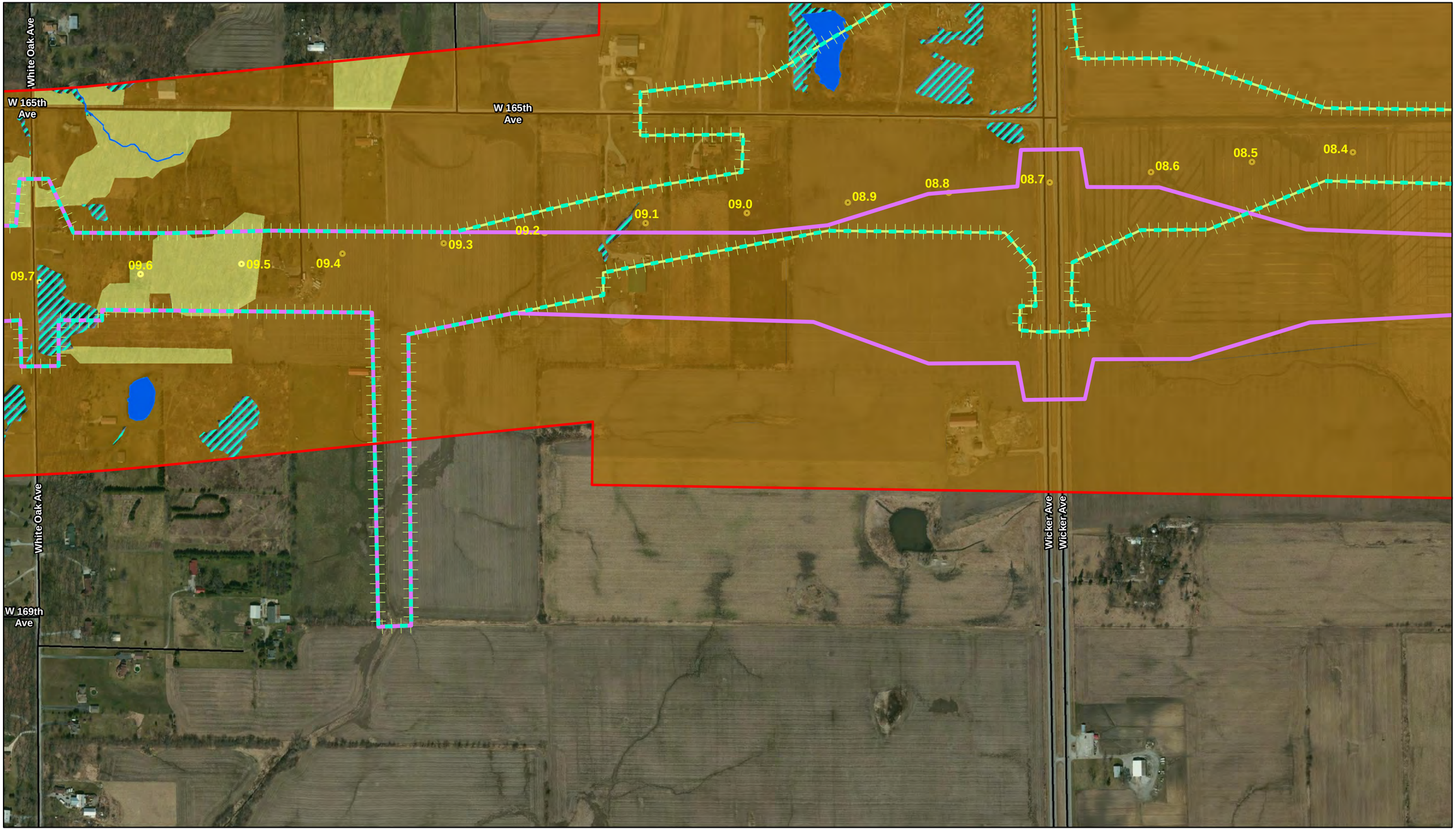

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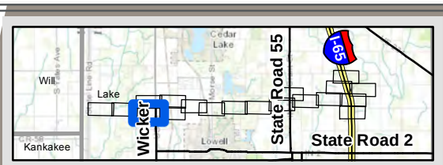

Appendix B: Land Cover Maps
Land Cover Report
Illiana Corridor
Lake County, Indiana

0 300 600 1,200 Feet

Legend

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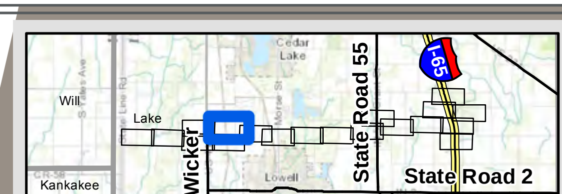

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Illiana Corridor
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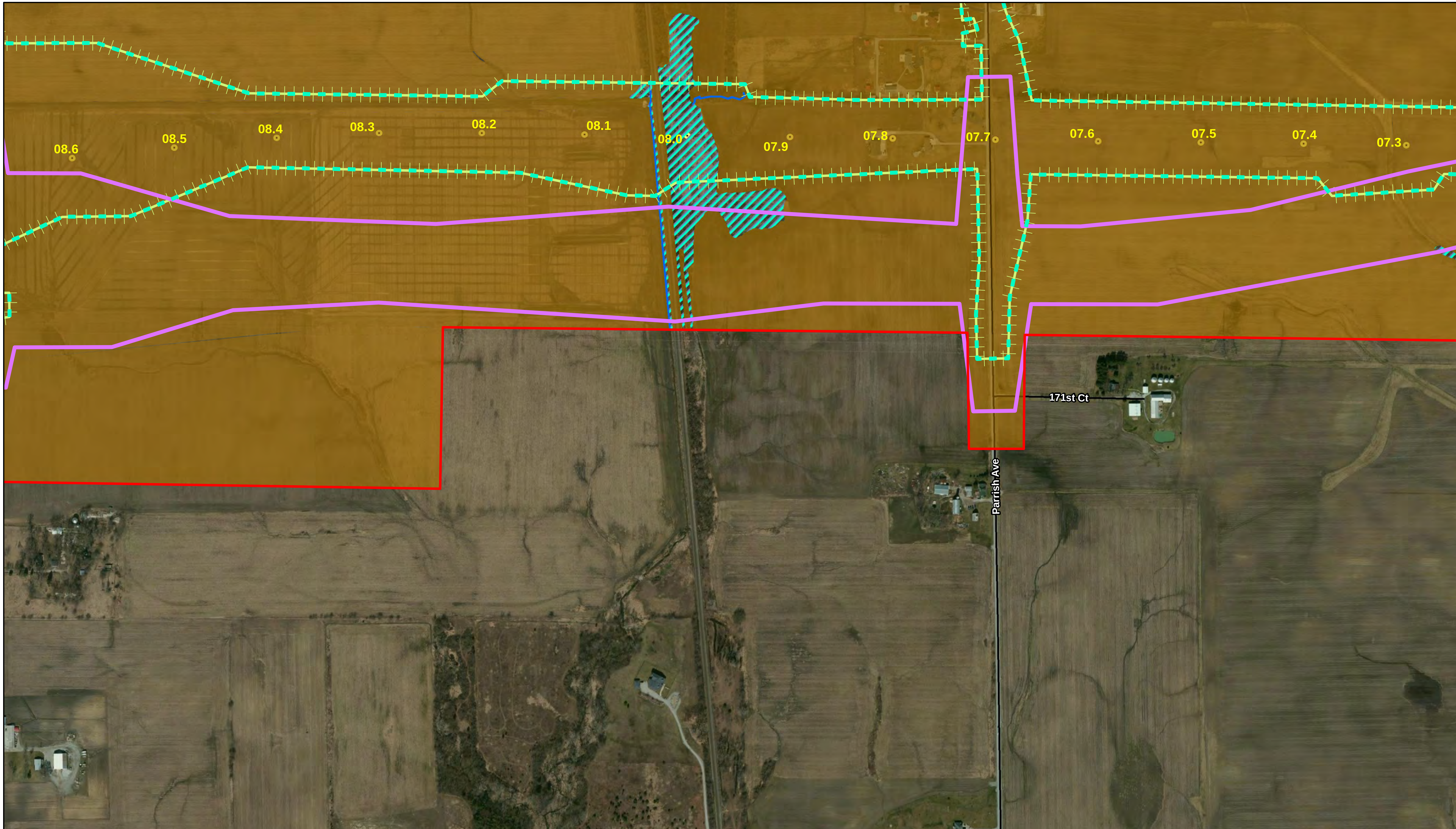

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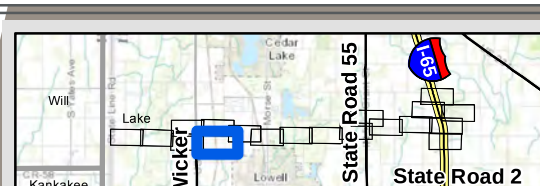

Appendix B: Land Cover Maps
Land Cover Report
Illiana Corridor
Lake County, Indiana

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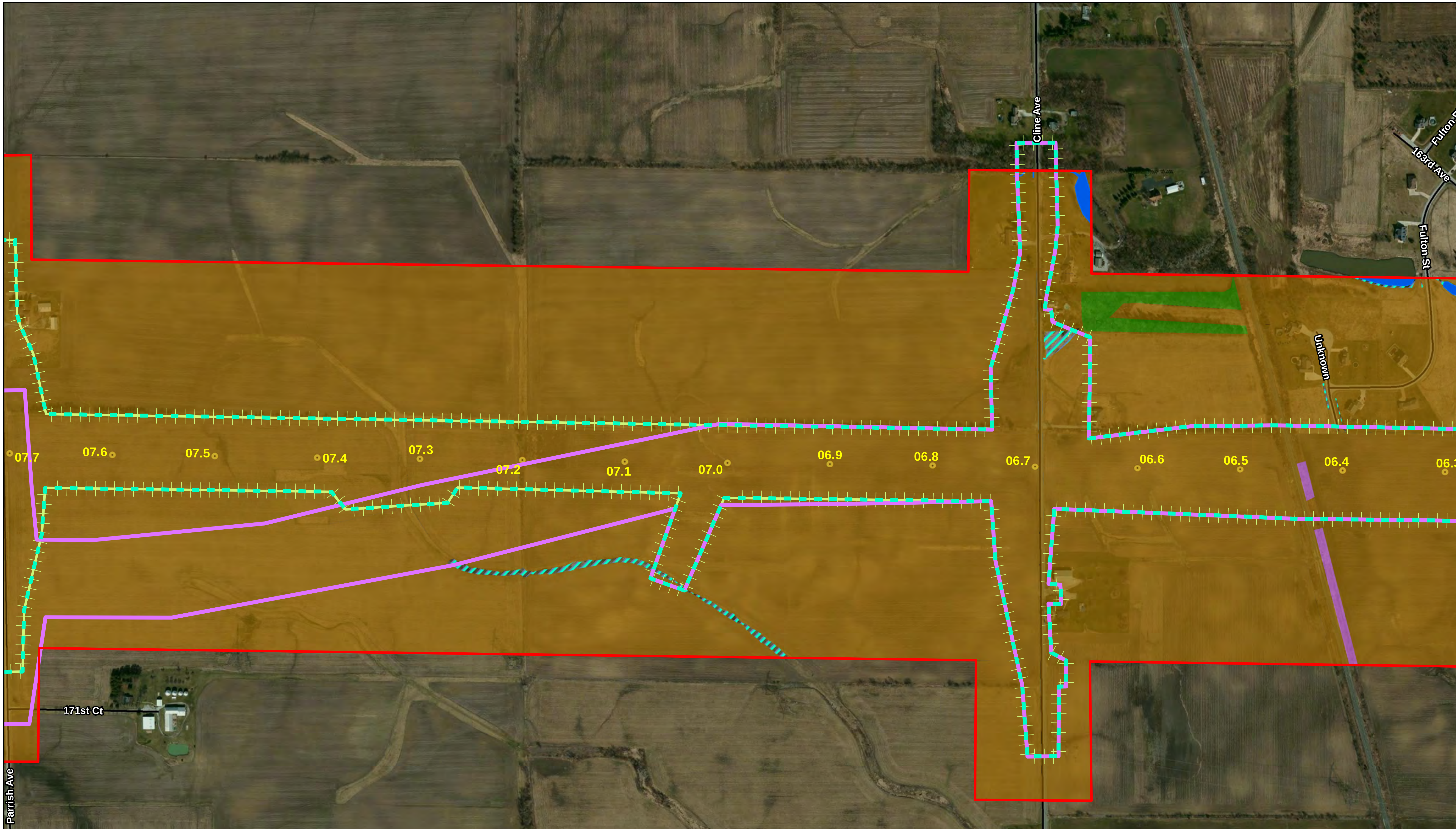

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Township:33 N
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Project No: 1012012

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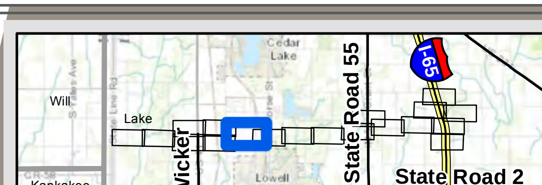

Appendix B: Land Cover Maps
Land Cover Report
Illiana Corridor
Lake County, Indiana

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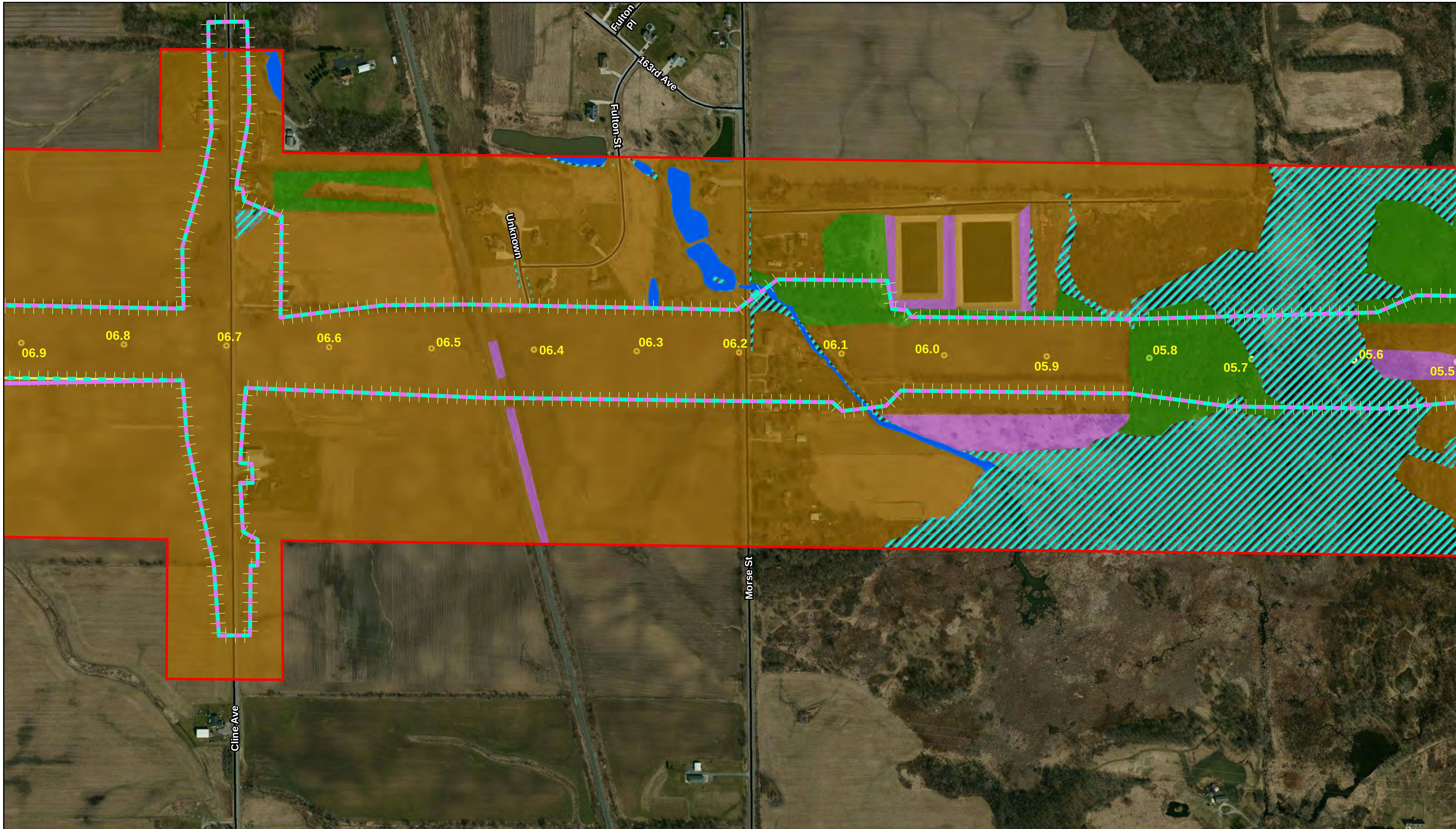

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Range: 8, 9 W
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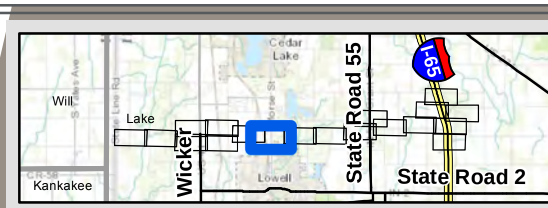

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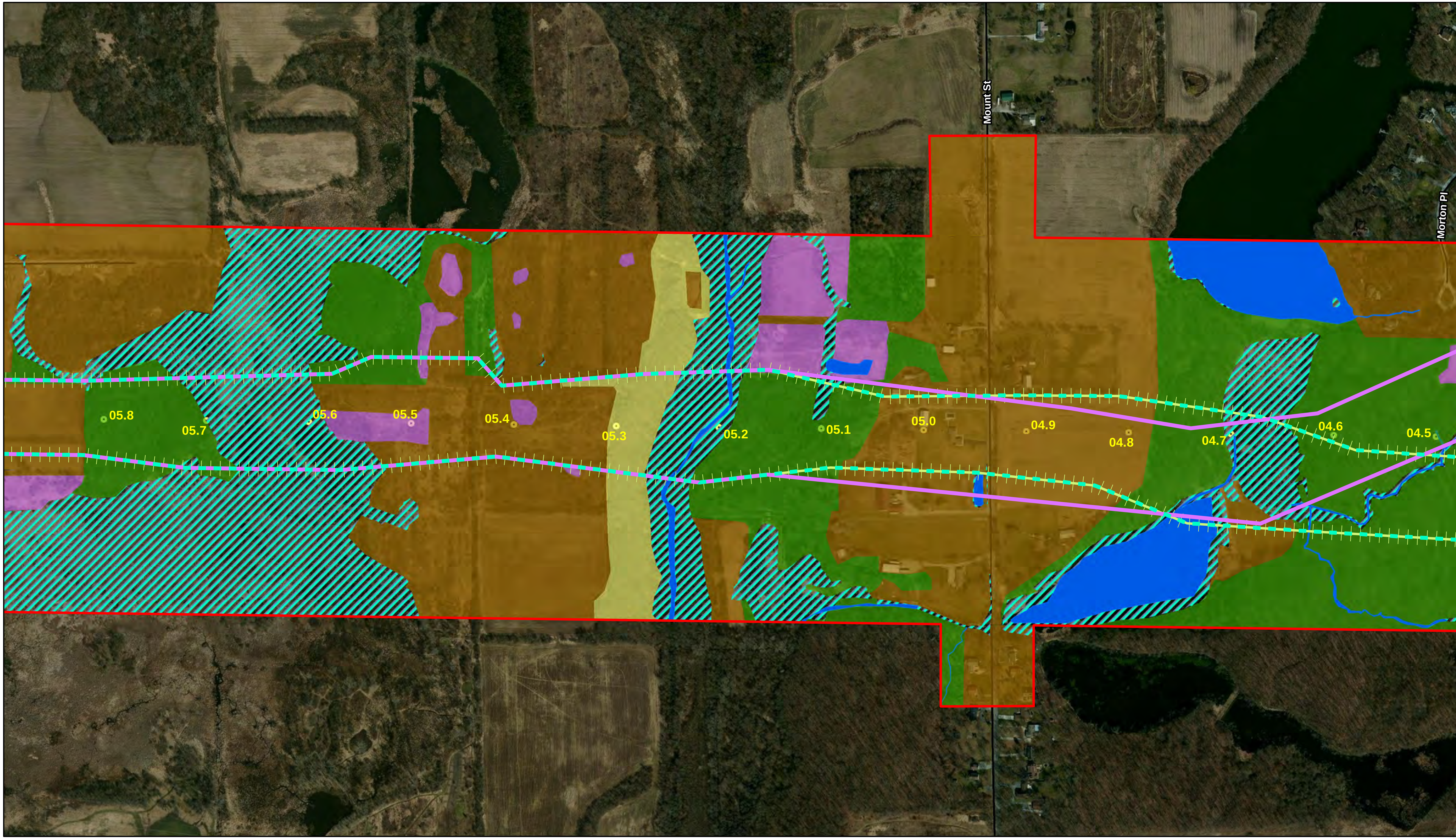

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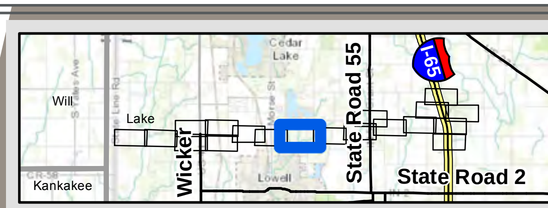

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Land Cover Report
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Lake County, Indiana

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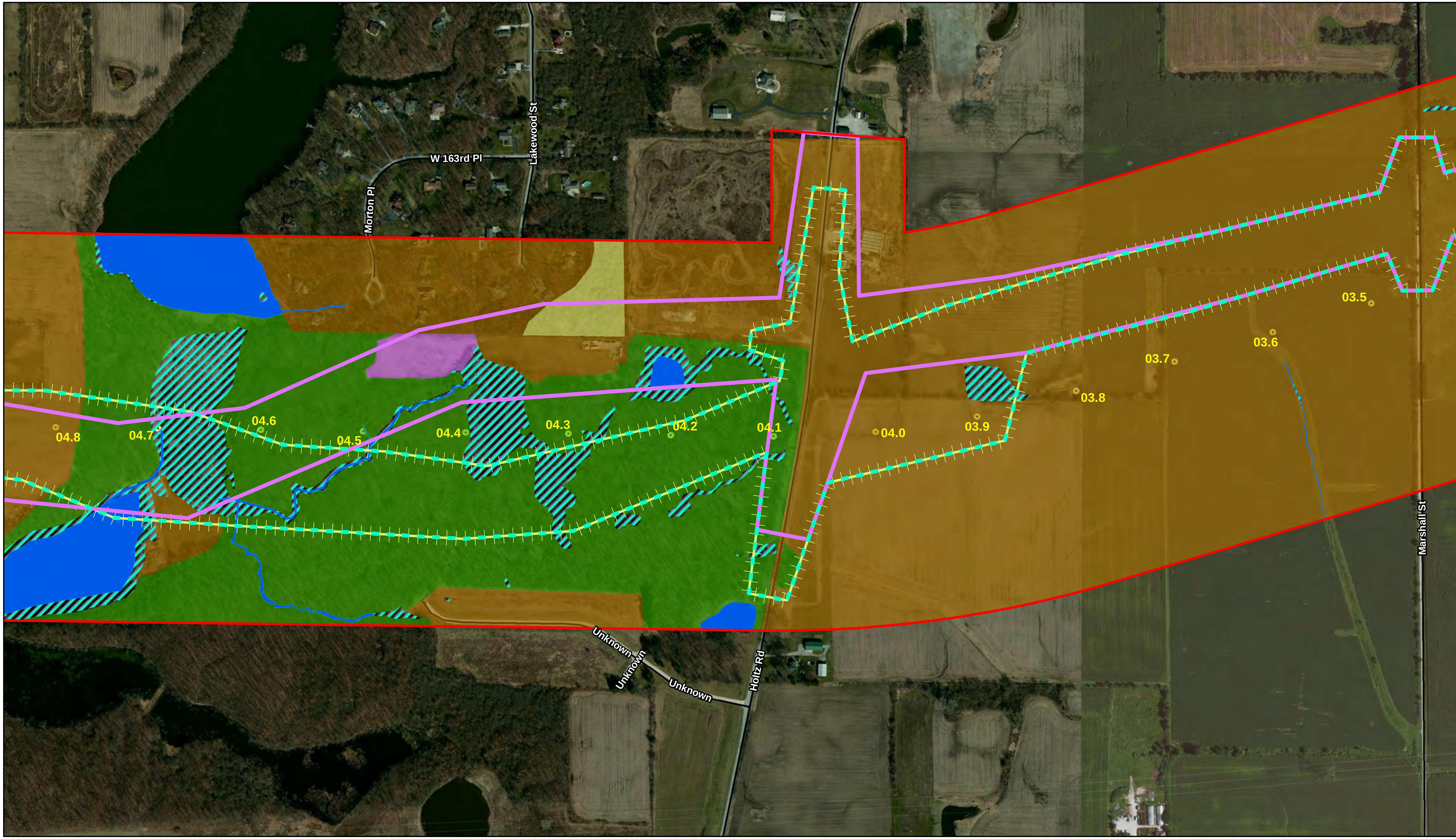

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Township:33 N
Range: 8, 9 W
Project No: 1012012

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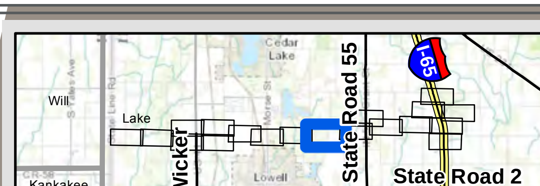

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Land Cover Report
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Lake County, Indiana

0 300 600 1,200 Feet

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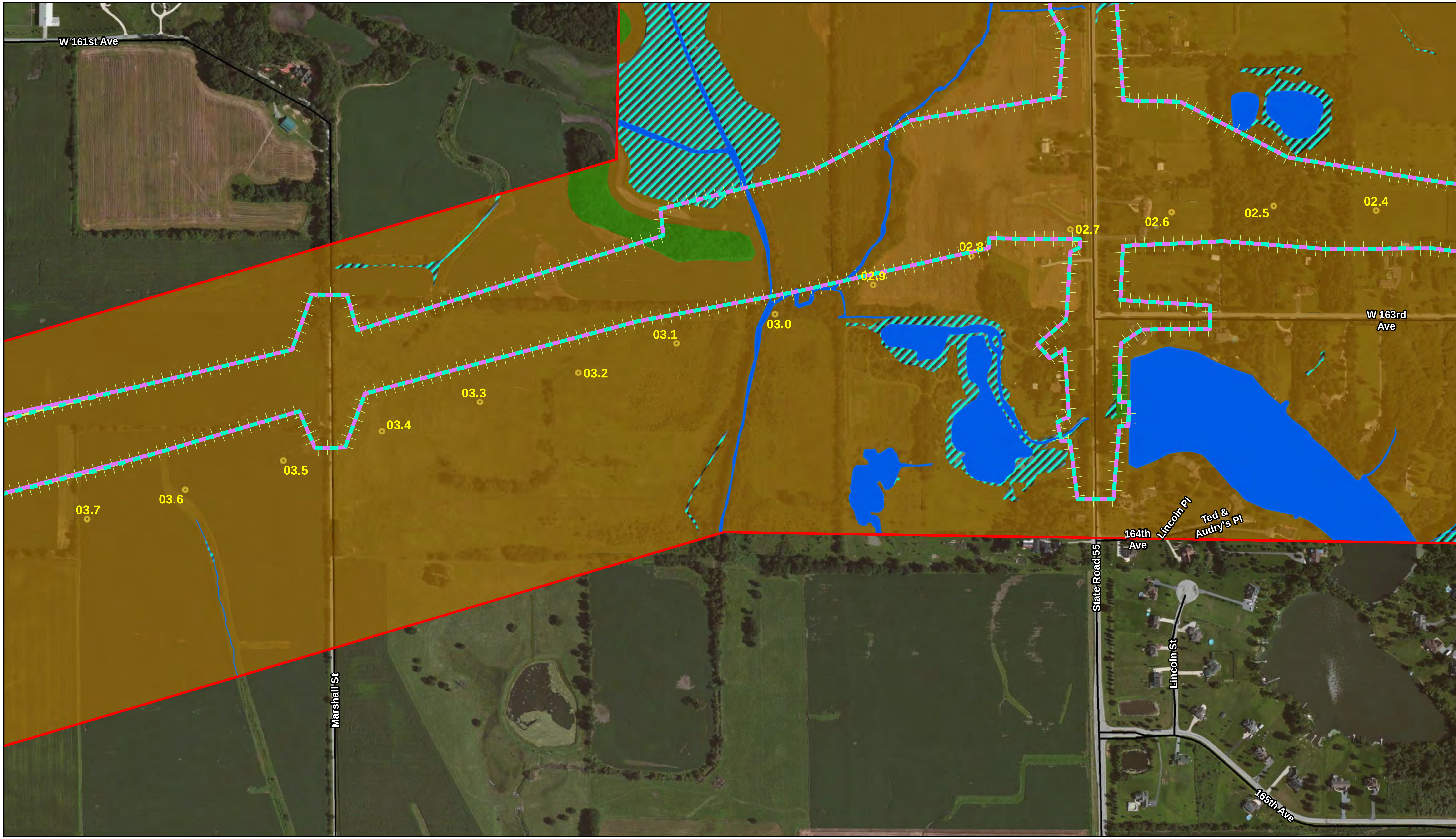

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Township:33 N
Range: 8, 9 W
Project No: 1012012

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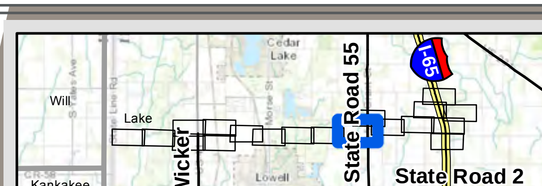

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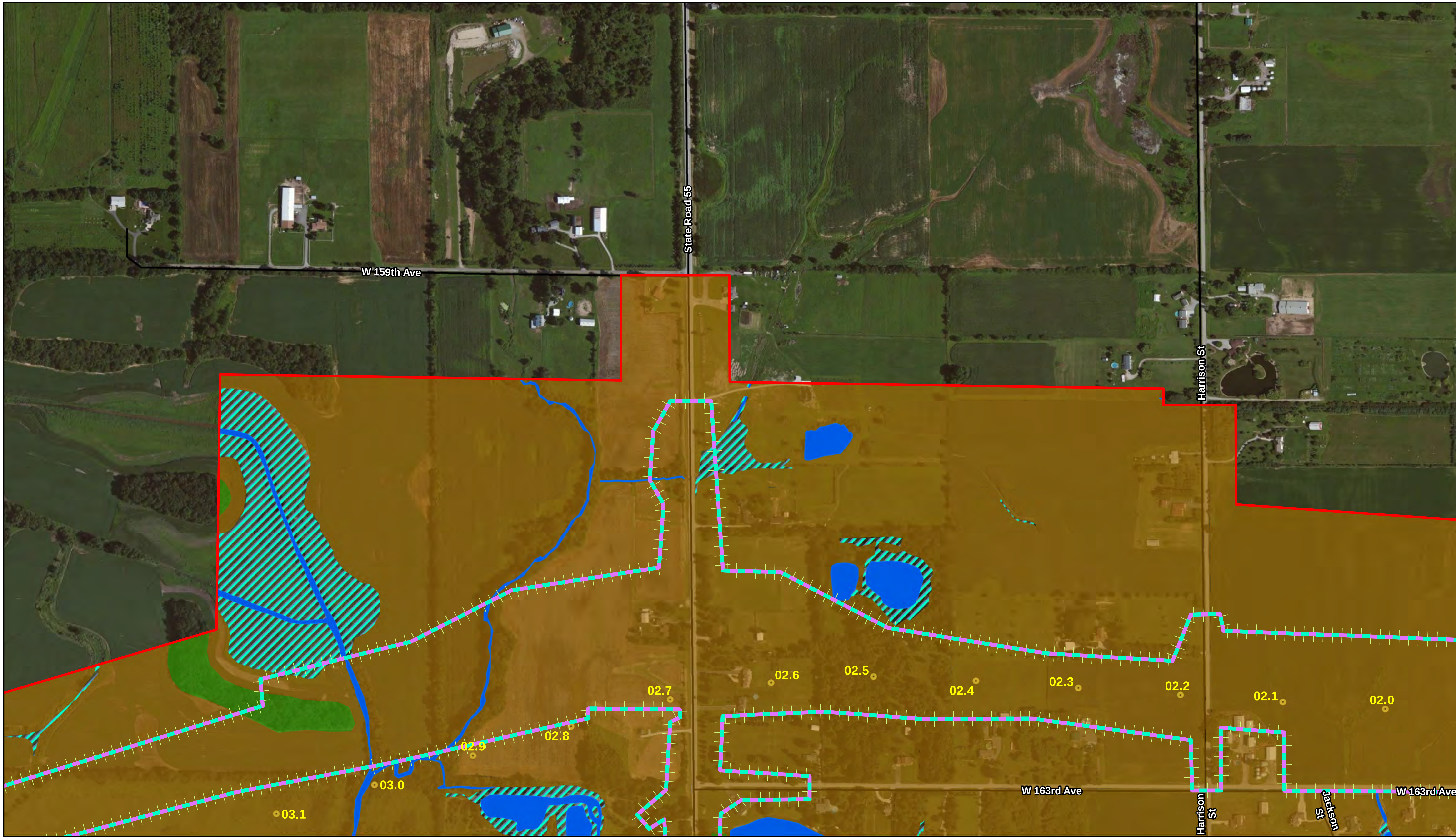

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W 159th Ave
Harrison St
W 163rd Ave
Jackson St
02.0
02.1
02.2
02.3
02.4
02.5
02.6
02.7
02.8
02.9
03.0
03.1
N
W
E
S
Will
Lake
Kankakee
Cedar Lake
Lowell
Wicker
State Road 2
I-65
Legend
Project Corridor
Alternative 1 Mainline Option
Alternative 2 Mainline Option
Alternative 3 Mainline Option
Forest
Prairie
Savanna
Existing Wetland
Stream, Lake and Pond
Cultural
0
300
600
1,200 Feet

Township:33 N
Range: 8, 9 W
Project No: 1012012

Appendix B: Land Cover Maps
Land Cover Report
Illiana Corridor
Lake County, Indiana

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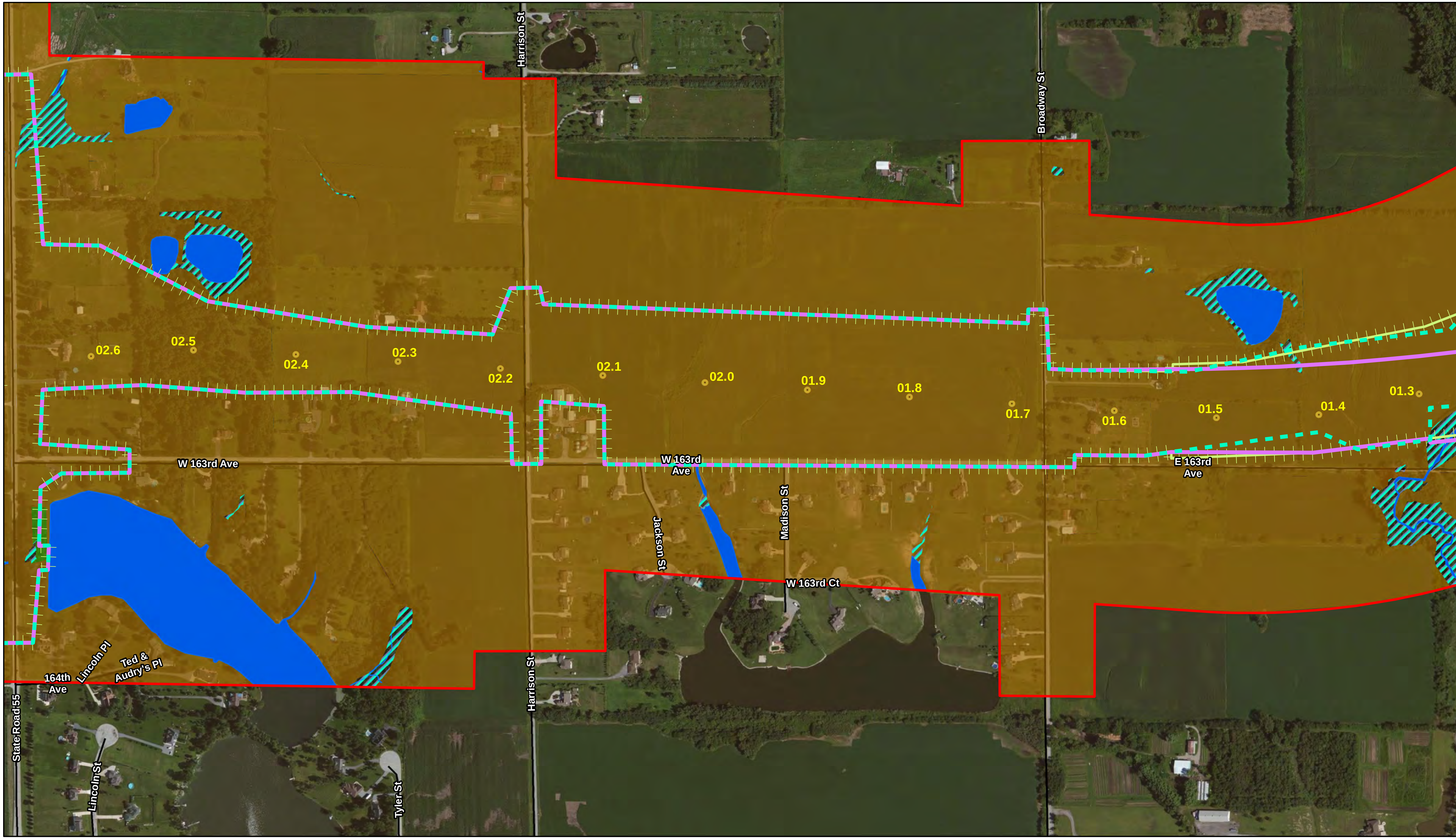

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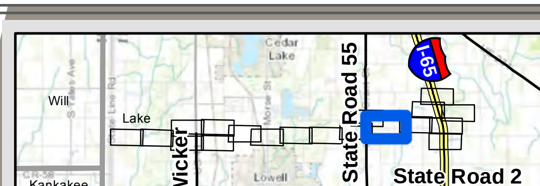
Township:33 N
Range: 8, 9 W
Project No: 1012012



Appendix B: Land Cover Maps
Land Cover Report
Illiana Corridor
Lake County, Indiana

0 300 600 1,200 Feet

Legend

- Project Corridor
- Alternative 1 Mainline Option
- Alternative 2 Mainline Option
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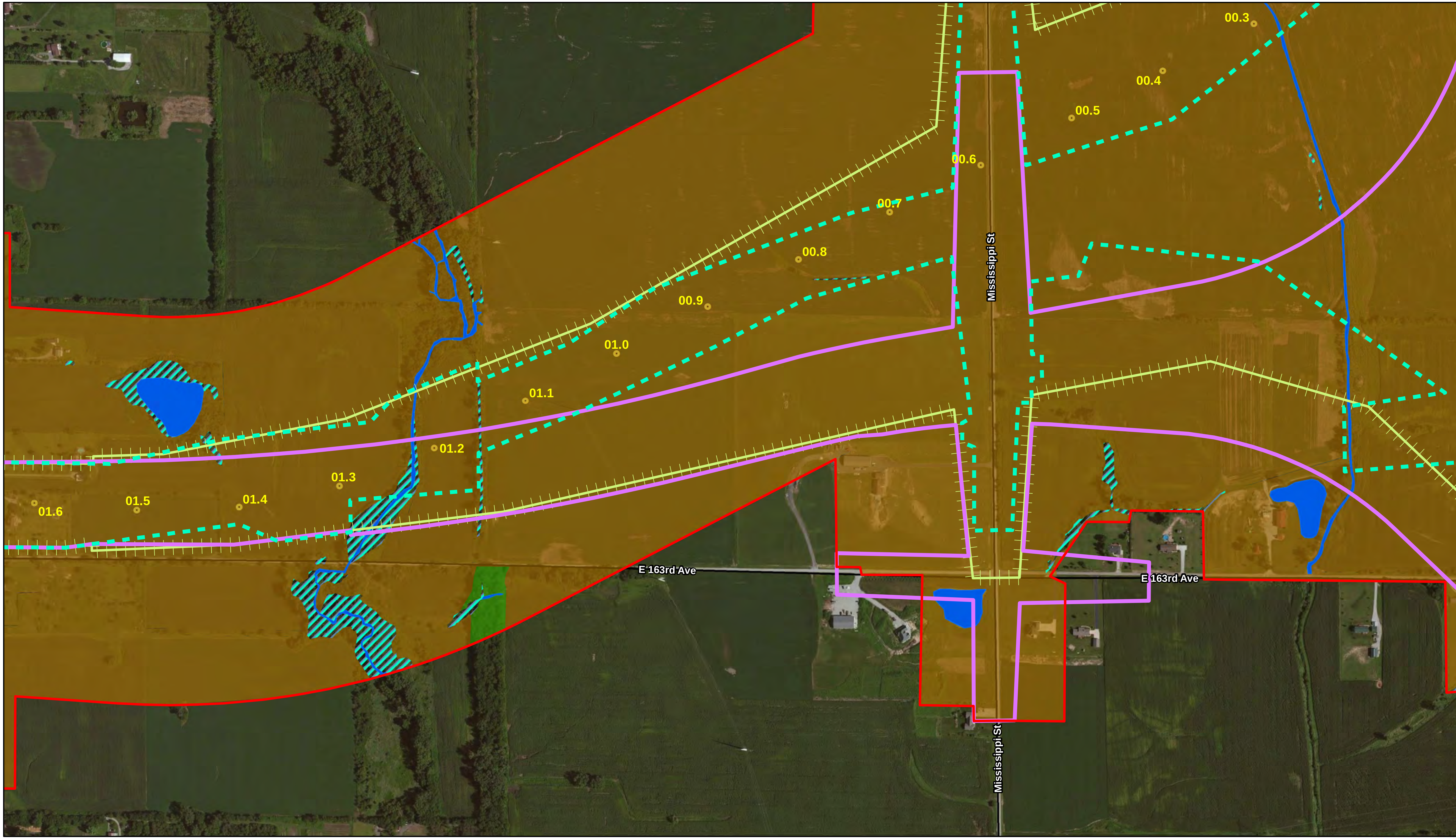
GIS Analyst: christine.dittmar



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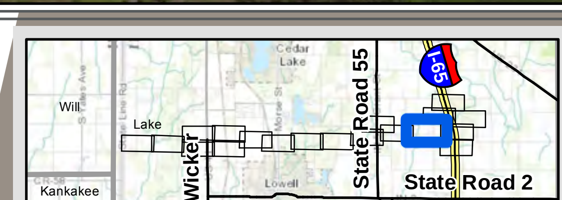
Township:33 N
Range: 8, 9 W
Project No: 1012012



Appendix B: Land Cover Maps
Land Cover Report
Illiana Corridor
Lake County, Indiana

0 300 600 1,200 Feet

Legend
- Project Corridor
- Alternative 1 Mainline Option
- Alternative 2 Mainline Option
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Data Sources:
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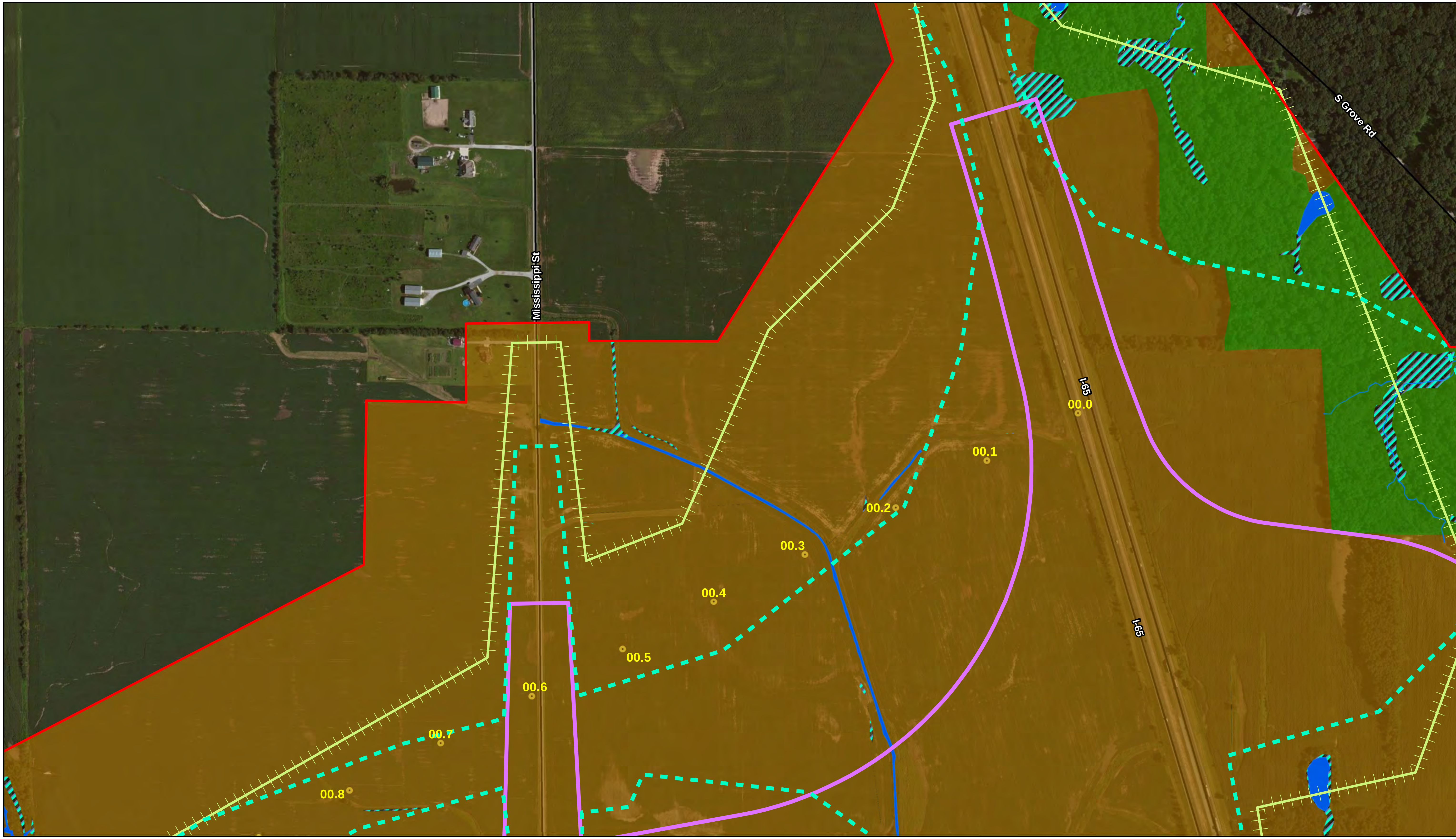

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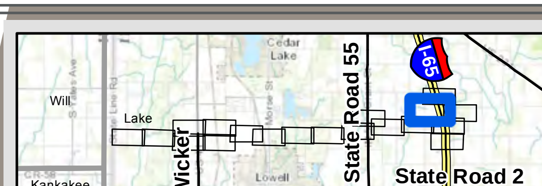
Township:33 N
Range: 8, 9 W
Project No: 1012012



Appendix B: Land Cover Maps
Land Cover Report
Illiana Corridor
Lake County, Indiana

0 300 600 1,200 Feet

Legend

- Project Corridor
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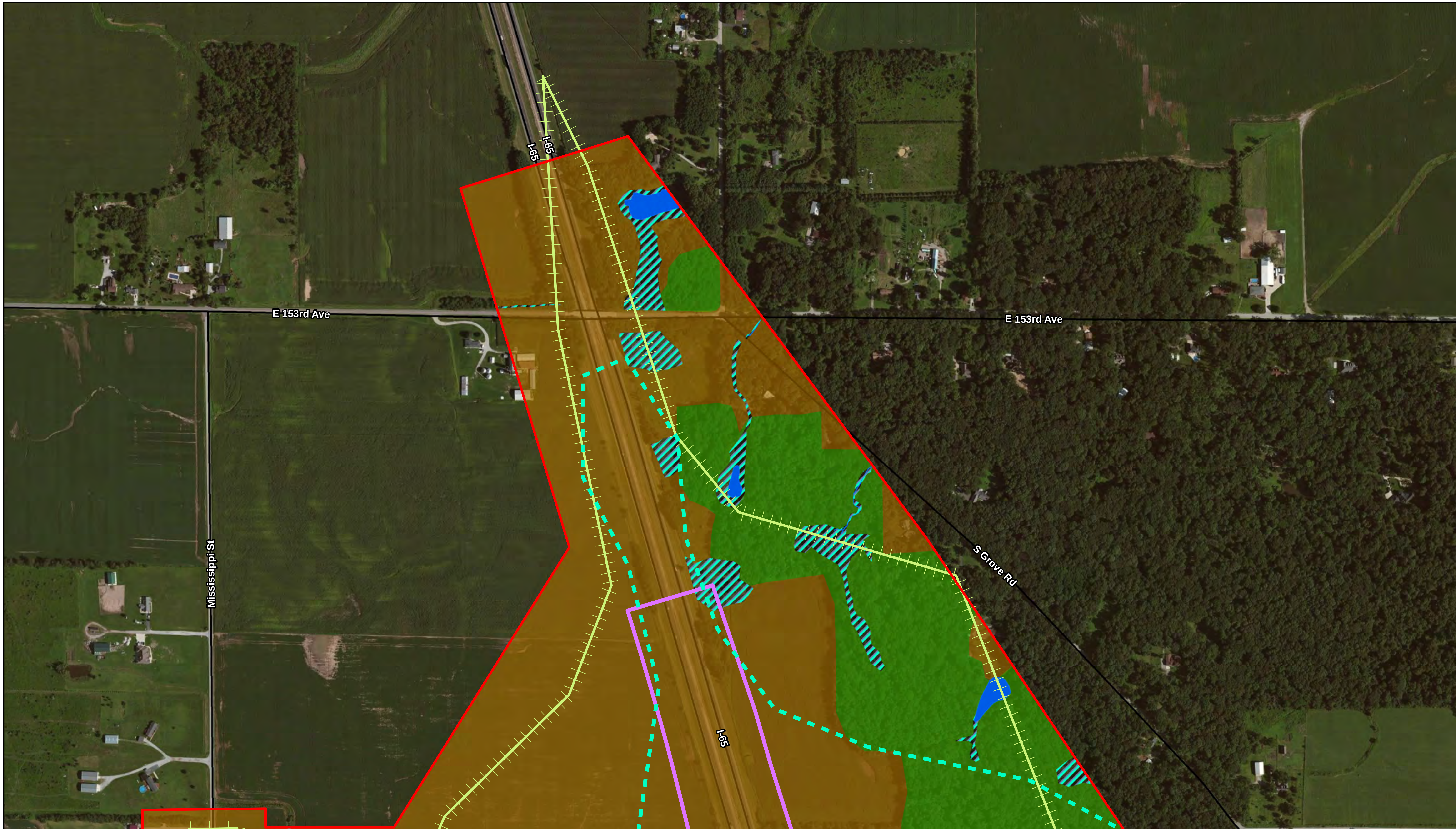

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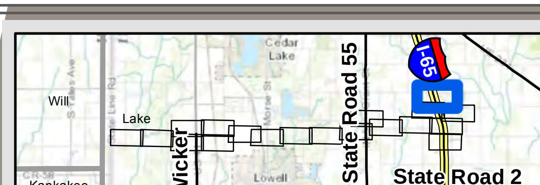
Township:33 N
Range: 8, 9 W
Project No: 1012012



Appendix B: Land Cover Maps
Land Cover Report
Illiana Corridor
Lake County, Indiana

0 300 600 1,200 Feet

Legend

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N-400

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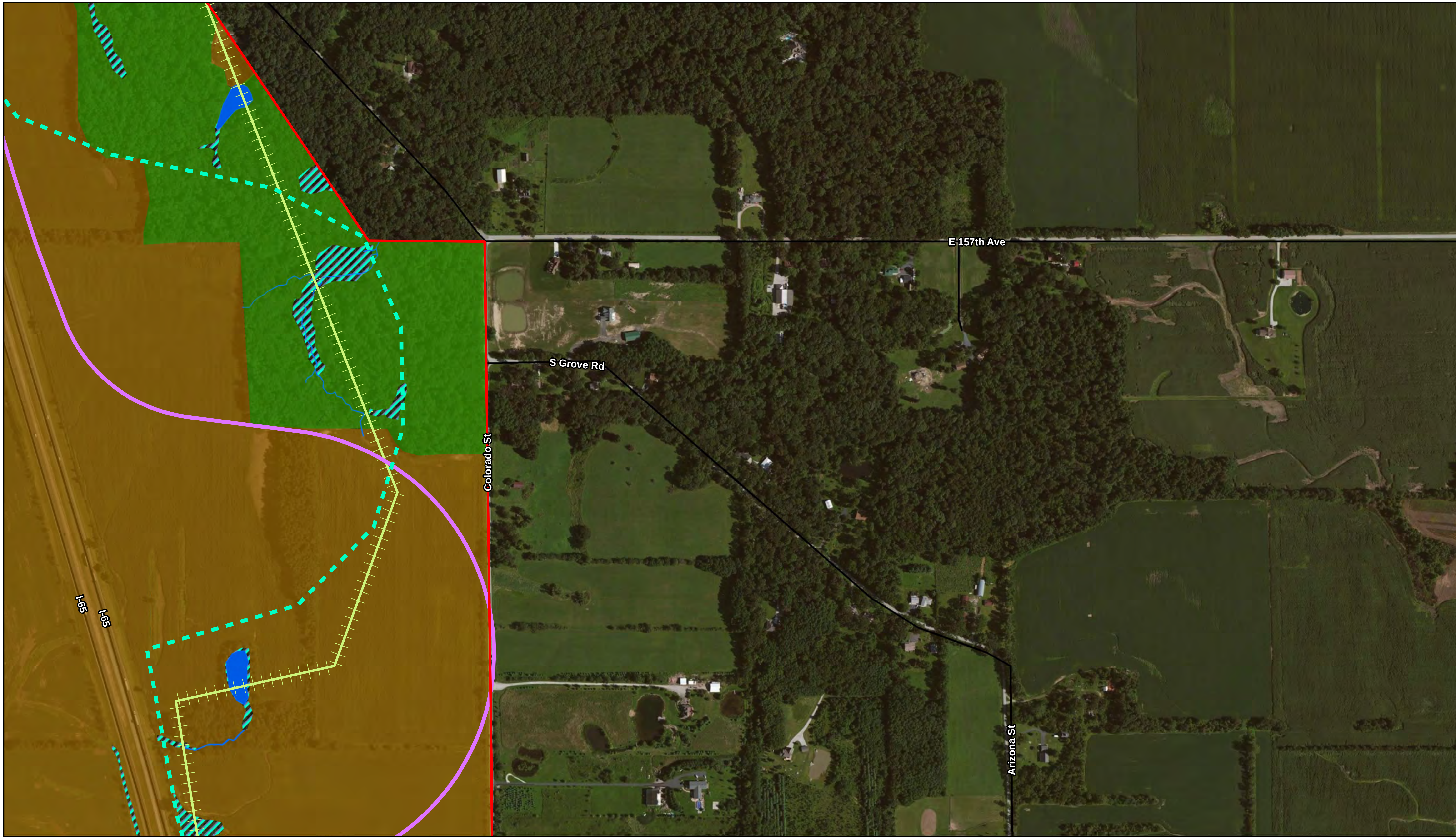

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Township:33 N
Range: 8, 9 W
Project No: 1012012

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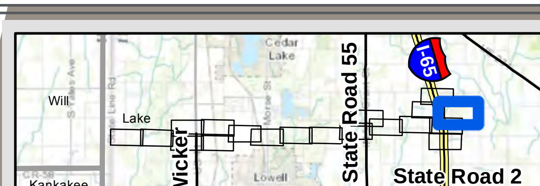

Appendix B: Land Cover Maps
Land Cover Report
Illiana Corridor
Lake County, Indiana

0 300 600 1,200 Feet

Legend

- Project Corridor
- Alternative 1 Mainline Option
- Alternative 2 Mainline Option
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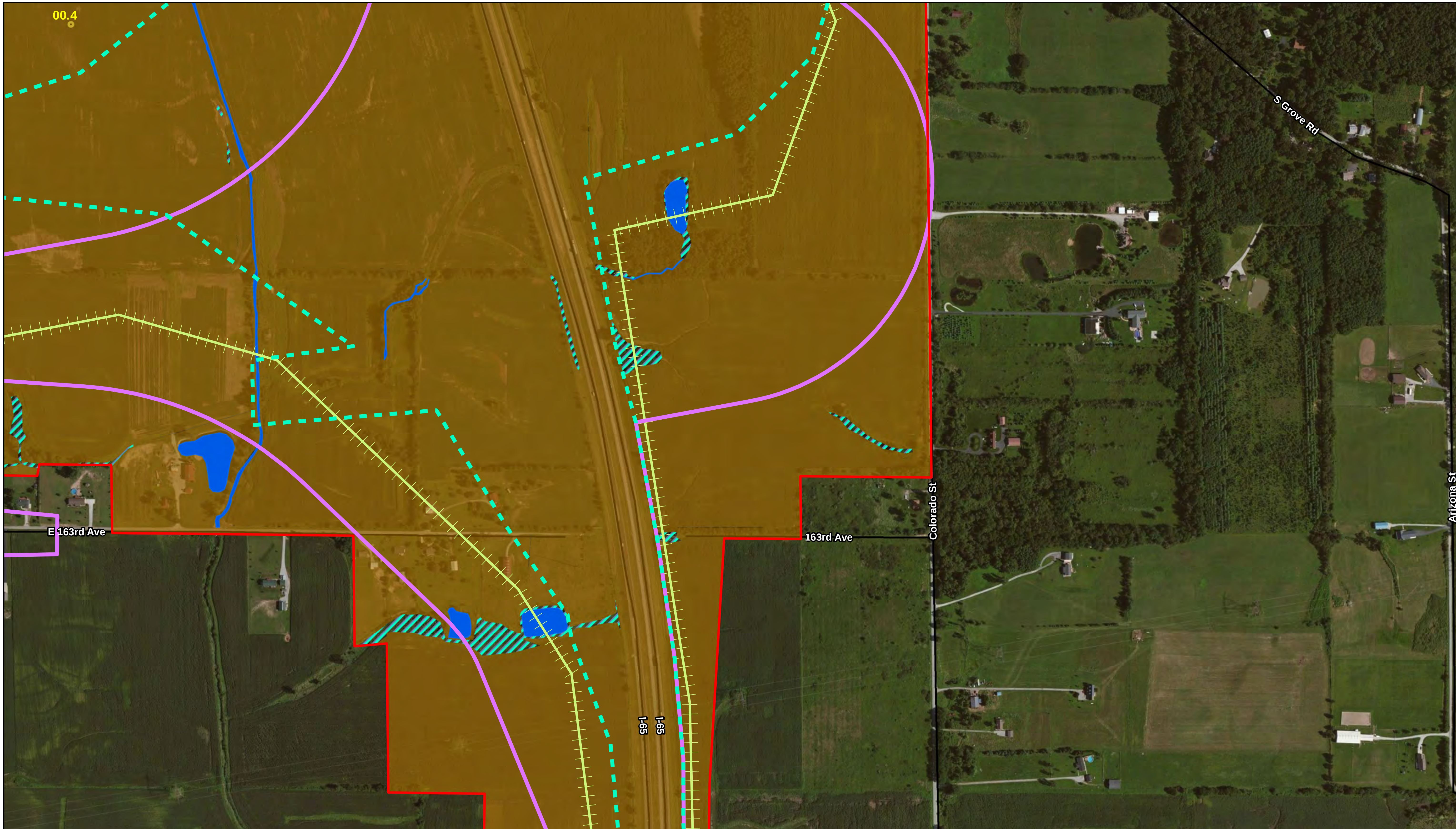
Data Sources:

GIS Analyst: christine.dittmar



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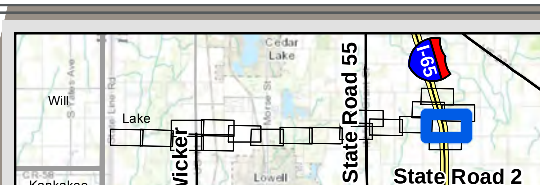
Township:33 N
Range: 8, 9 W
Project No: 1012012



Appendix B: Land Cover Maps
Land Cover Report
Illiana Corridor
Lake County, Indiana

0 300 600 1,200 Feet

Legend

- Project Corridor
- Alternative 1 Mainline Option
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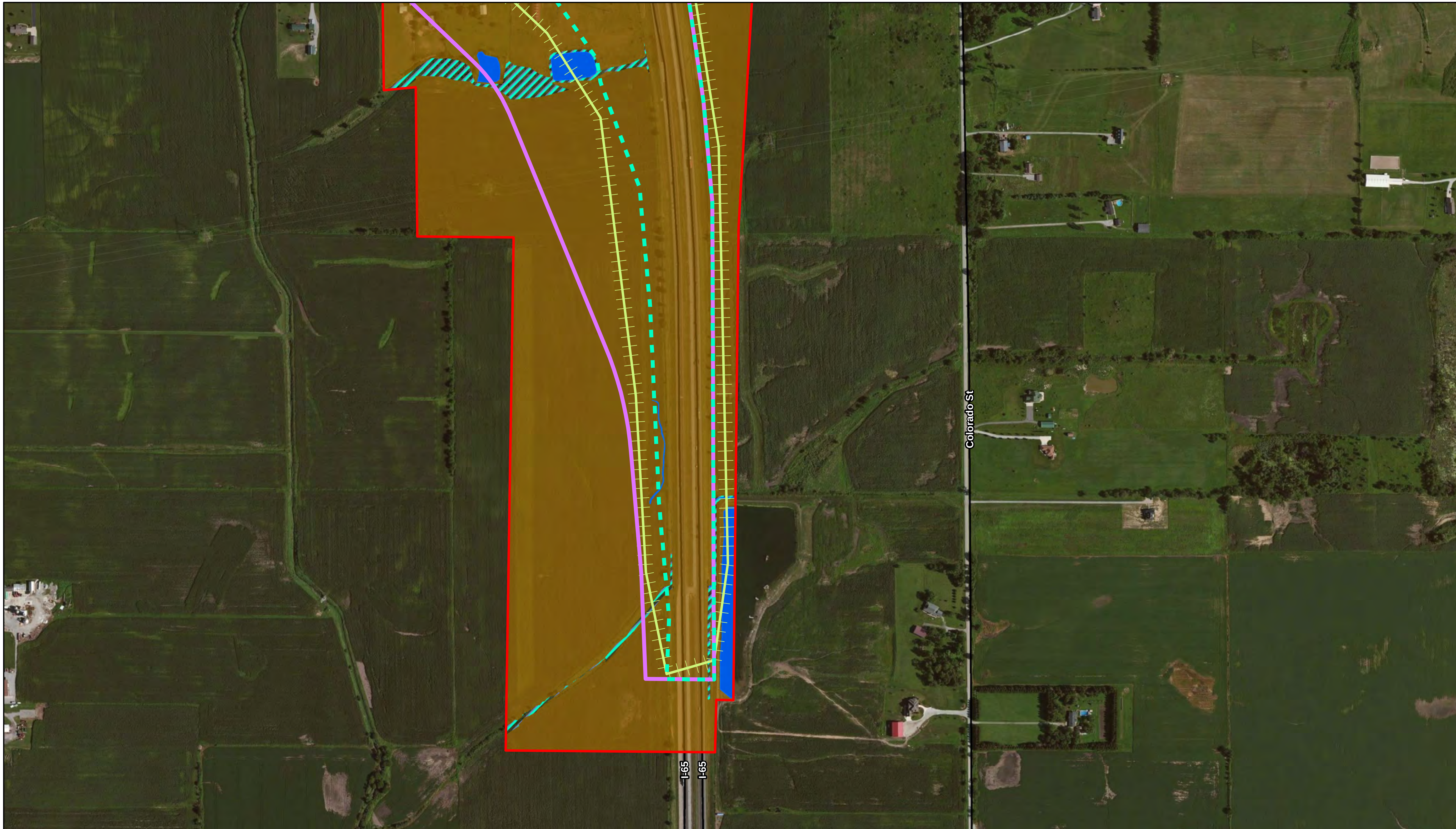

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Township:33 N
Range: 8, 9 W
Project No: 1012012

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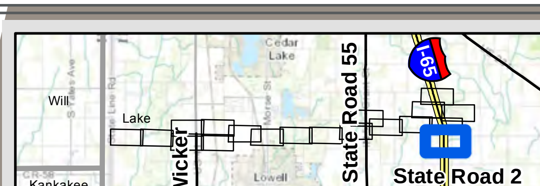

Appendix B: Land Cover Maps
Land Cover Report
Illiana Corridor
Lake County, Indiana

0 300 600 1,200 Feet

Legend

- Project Corridor
- Alternative 1 Mainline Option
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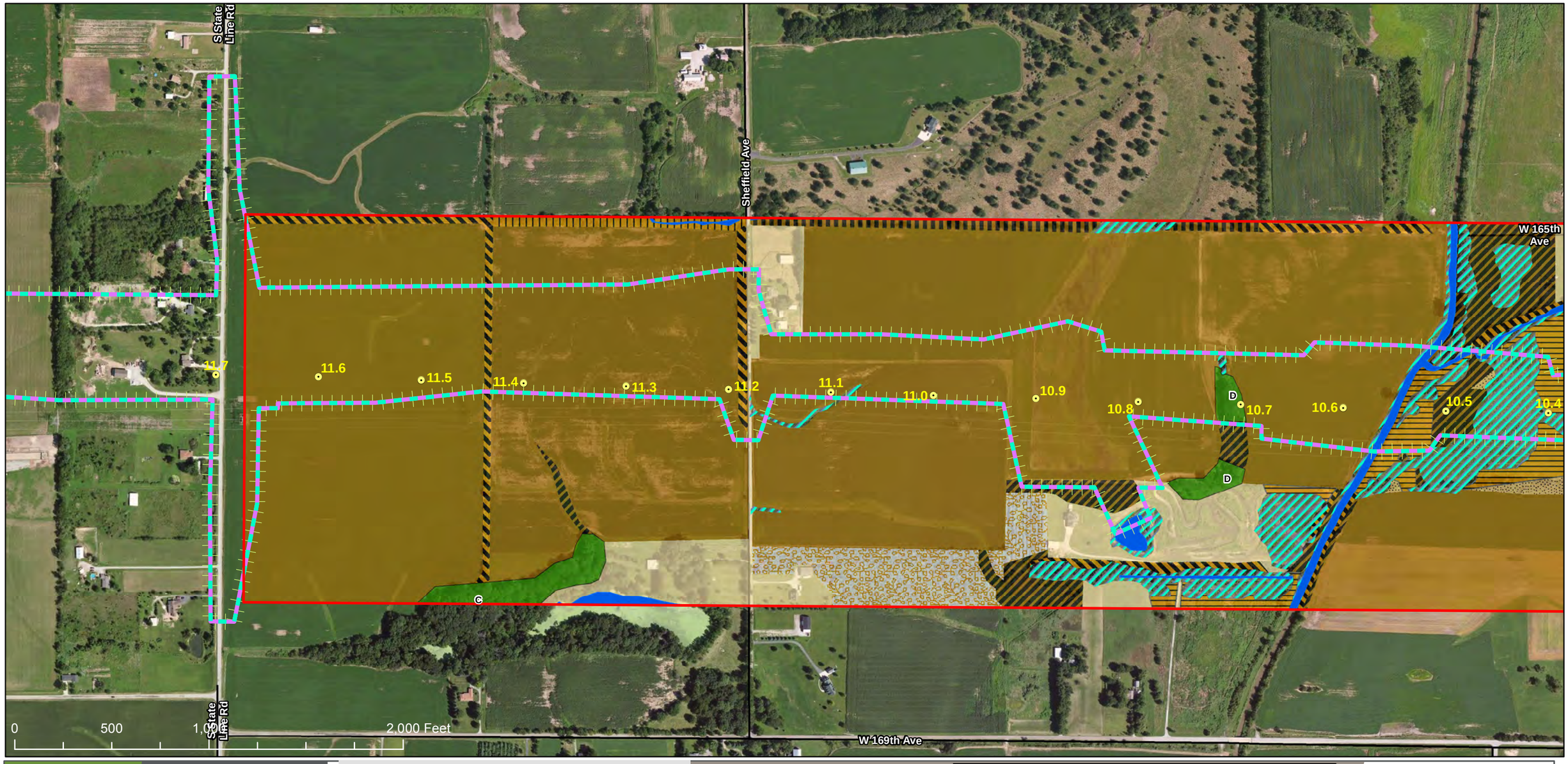
Data Sources:
GIS Analyst: christine.dittmar

Appendix C

Vegetation Cover Map (Sheet 1 – 19)

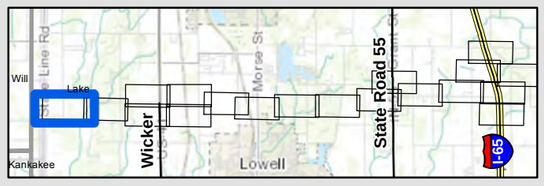
Legend

- Project Corridor
- Alternative 1 Mainline Option
- Alternative 2 Mainline Option
- Alternative 3 Mainline Option
- B3 Stationing (Mile)
- Dry-Mesic Upland Forest
- Mesic Upland Forest
- Mesic Floodplain Forest
- Wet-Mesic Floodplain Forest
- Wet Floodplain Forest
- Mesic Prairie
- Dry-Mesic Prairie
- Dry-Mesic Savanna
- Existing Wetland
- Creek and Pond
- Cropland
- Pasture and Hayland
- Successional Field Non-Native Grassland
- Successional Field Forbland
- Successional Field Shrubland
- Successional Woodland
- Prairie Restoration / Planting
- Fencerow
- Tree Plantation
- Developed Land



N W E S

Township:33 N
Range: 8, 9 W
Project No: 1012012



Appendix C: Vegetation Cover Maps
Land Cover Report
Illiana Corridor
Lake County, Indiana

Grading System for Natural Communities
A Relatively stable or undisturbed
B Late successional or lightly disturbed
C Mid-successional or moderately to heavily disturbed
D Early successional or severely disturbed
E Very early successional or very severely disturbed

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Data Sources:

GIS Analyst: christine.dittmar

Legend

- Project Corridor
- Alternative 1 Mainline Option
- Alternative 2 Mainline Option
- Alternative 3 Mainline Option
- B3 Stationing (Mile)
- Dry-Mesic Upland Forest
- Mesic Upland Forest
- Mesic Floodplain Forest
- Wet-Mesic Floodplain Forest
- Wet Floodplain Forest
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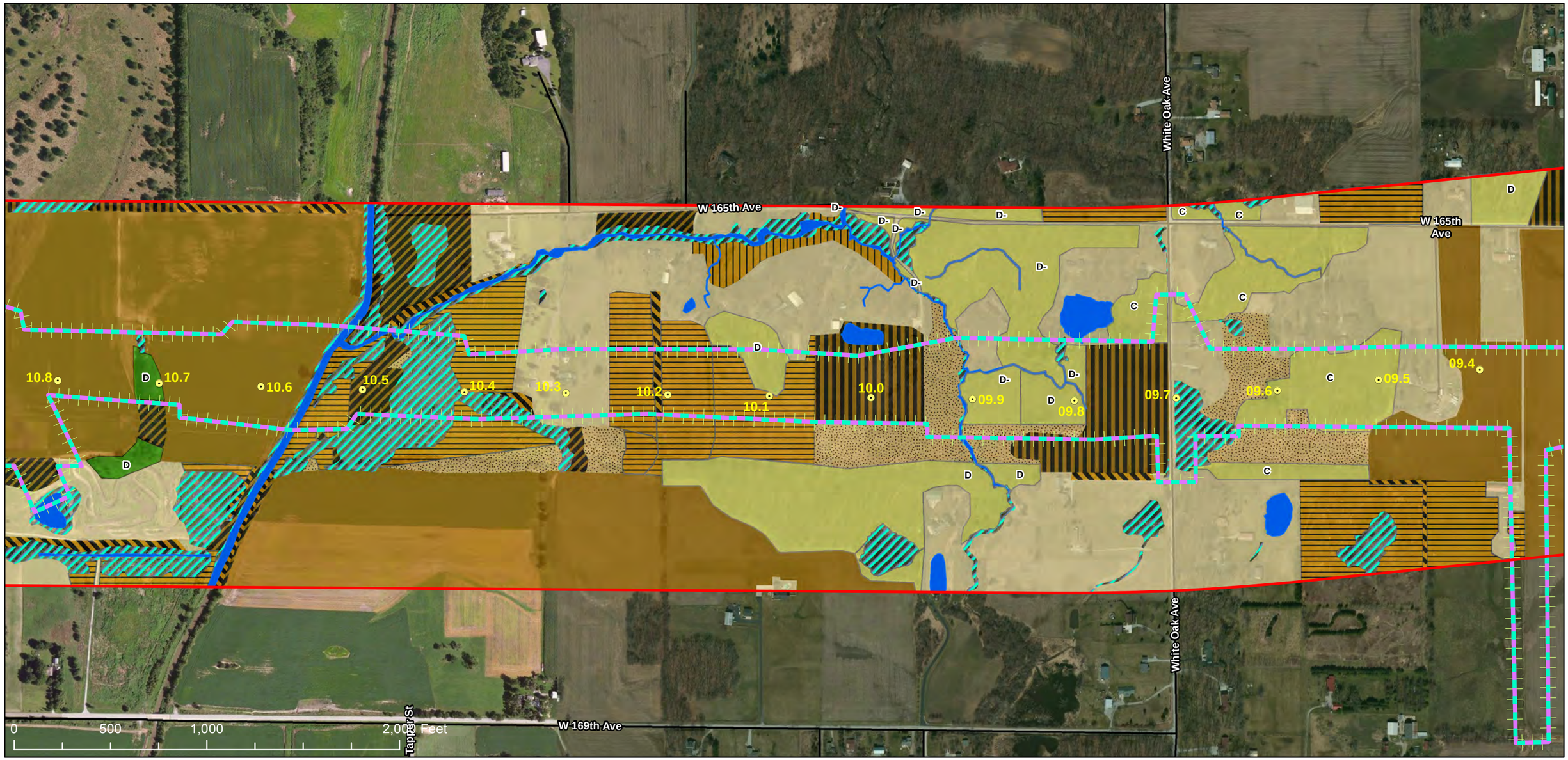
- Successional Field Forbland
- Successional Field Shrubland
- Successional Woodland
- Prairie Restoration / Planting
- Fencerow
- Tree Plantation
- Developed Land



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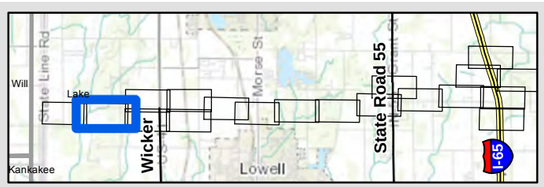
Township:33 N
Range: 8, 9 W
Project No: 1012012



Appendix C: Vegetation Cover Maps
Land Cover Report
Illiana Corridor
Lake County, Indiana

Grading System for Natural Communities
A Relatively stable or undisturbed
B Late successional or lightly disturbed
C Mid-successional or moderately to heavily disturbed
D Early successional or severely disturbed
E Very early successional or very severely disturbed

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Data Sources:
GIS Analyst: christine.dittmar

Legend

- Project Corridor
- Alternative 1 Mainline Option
- Alternative 2 Mainline Option
- Alternative 3 Mainline Option
- B3 Stationing (Mile)
- Dry-Mesic Upland Forest
- Mesic Upland Forest
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- Fencerow
- Tree Plantation
- Developed Land

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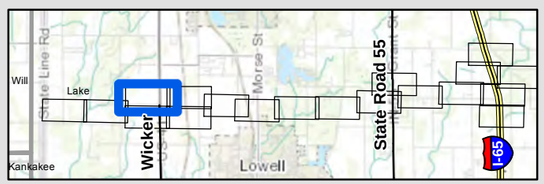
Township:33 N
Range: 8, 9 W
Project No: 1012012



Appendix C: Vegetation Cover Maps
Land Cover Report
Illiana Corridor
Lake County, Indiana

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Data Sources:

GIS Analyst: christine.dittmar

Legend

- Project Corridor
- Alternative 1 Mainline Option
- Alternative 2 Mainline Option
- Alternative 3 Mainline Option
- B3 Stationing (Mile)
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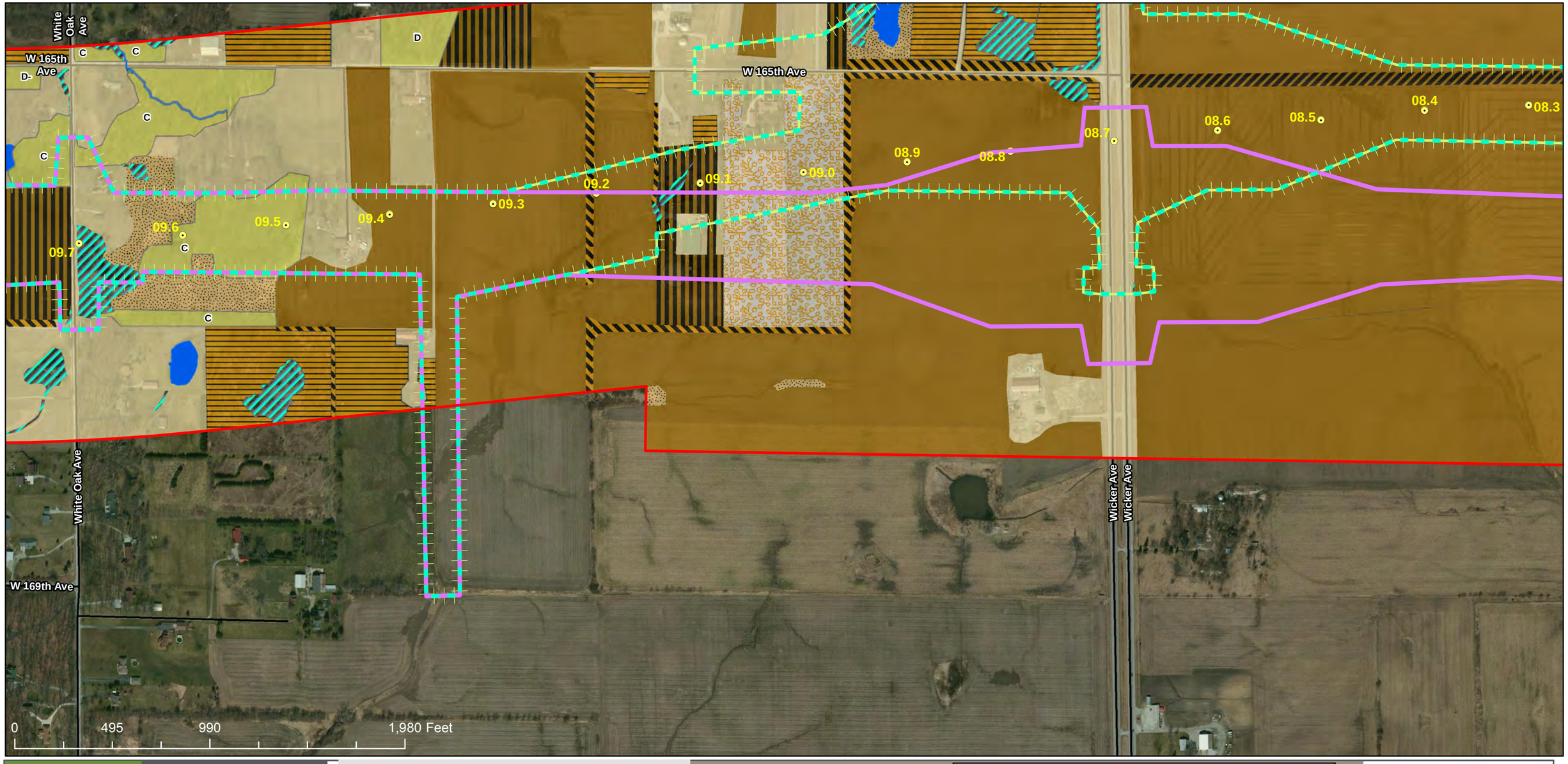

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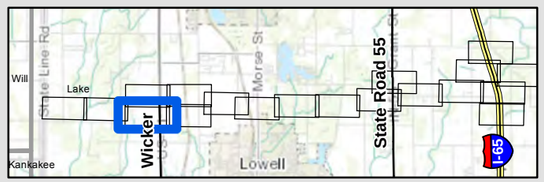
Township:33 N
Range: 8, 9 W
Project No: 1012012



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Land Cover Report
Illiana Corridor
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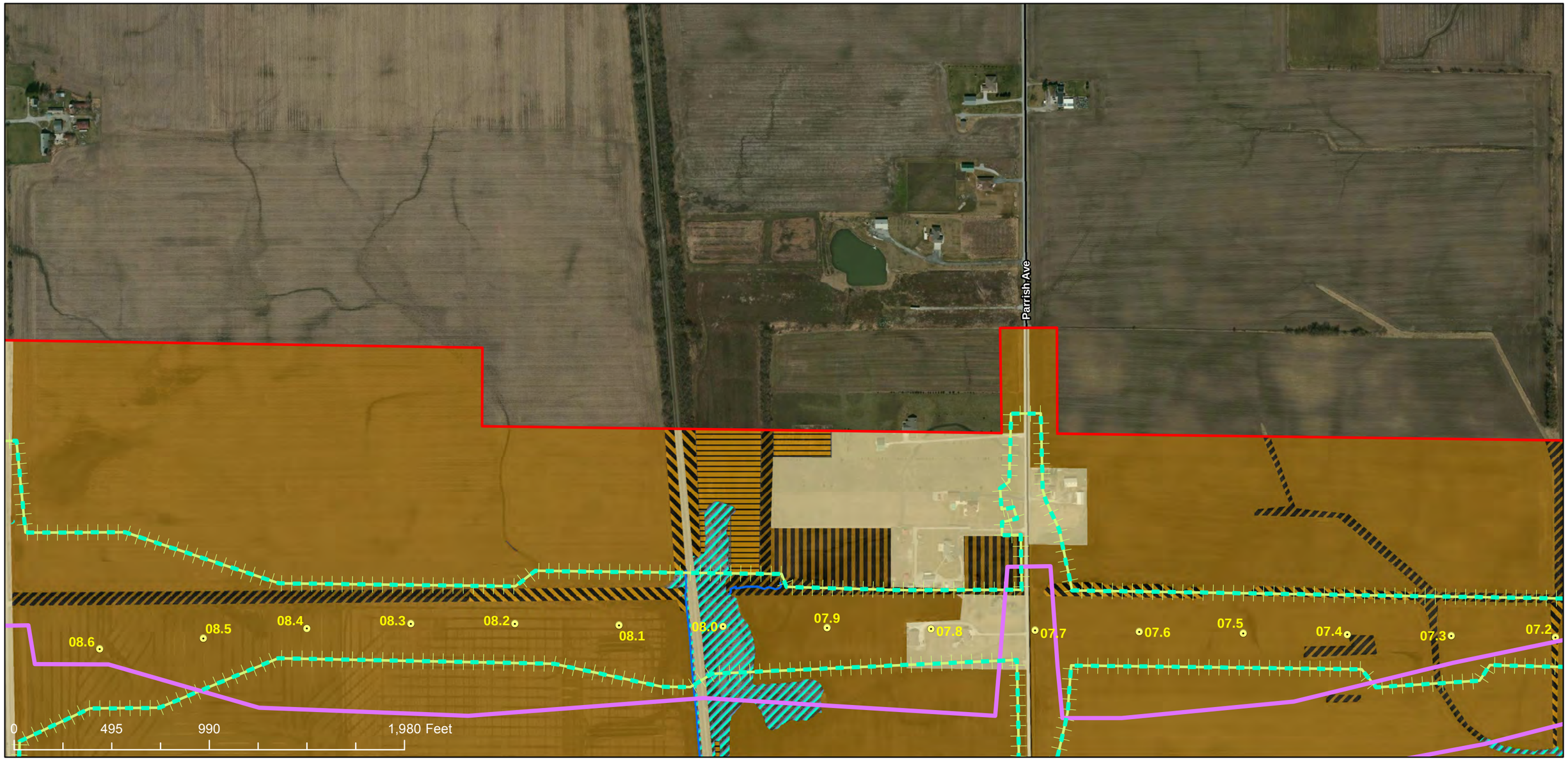

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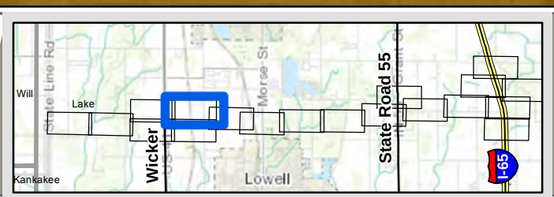
Township:33 N
Range: 8, 9 W
Project No: 1012012



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Land Cover Report
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Lake County, Indiana

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Data Sources:

GIS Analyst: christine.dittmar

Legend

- Project Corridor
- Alternative 1 Mainline Option
- Alternative 2 Mainline Option
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- B3 Stationing (Mile)
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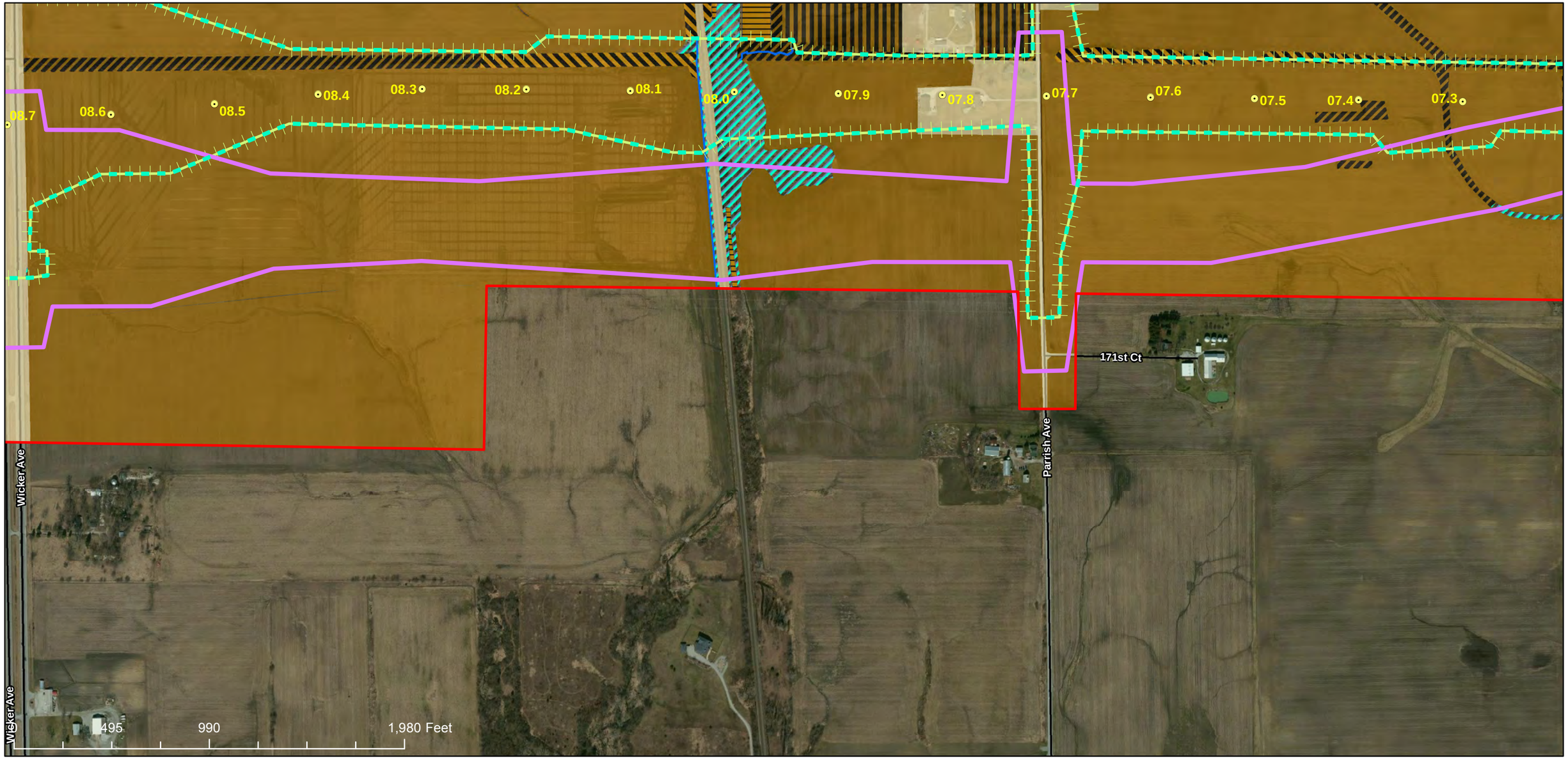

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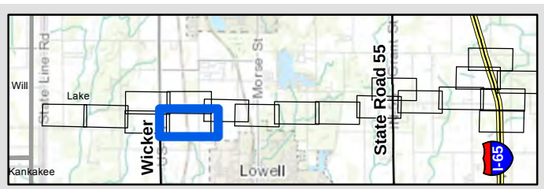
Township:33 N
Range: 8, 9 W
Project No: 1012012



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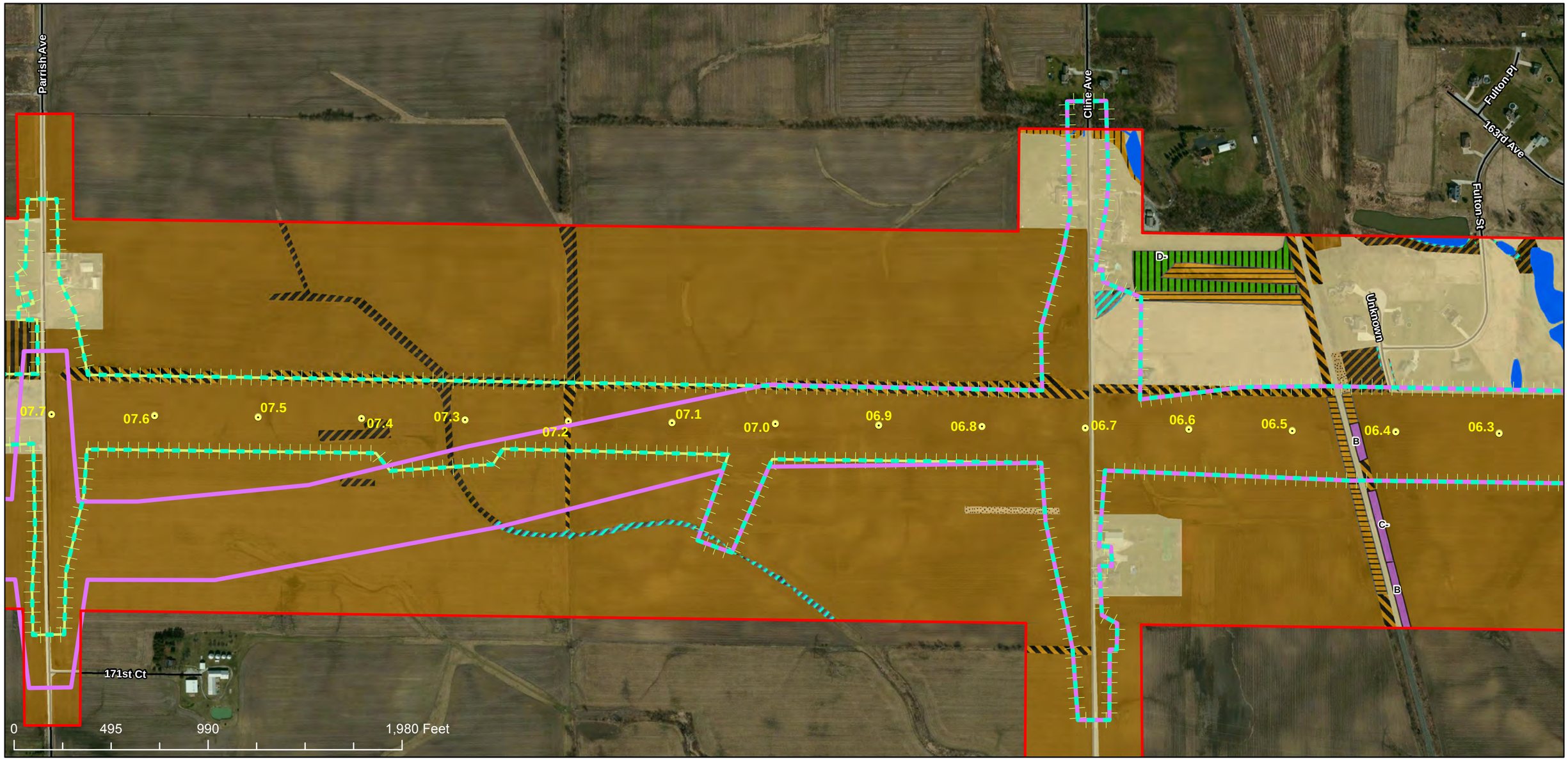
Data Sources:

GIS Analyst: christine.dittmar

Legend

- Project Corridor
- Alternative 1 Mainline Option
- Alternative 2 Mainline Option
- Alternative 3 Mainline Option
- B3 Stationing (Mile)
- Dry-Mesic Upland Forest
- Mesic Upland Forest
- Mesic Floodplain Forest
- Wet-Mesic Floodplain Forest
- Wet Floodplain Forest
- Mesic Prairie
- Dry-Mesic Prairie
- Dry-Mesic Savanna
- Existing Wetland
- Creek and Pond
- Cropland
- Pasture and Hayland
- Successional Field Non-Native Grassland
- Successional Field Forbland
- Successional Field Shrubland
- Successional Woodland
- Prairie Restoration / Planting
- Fencerow
- Tree Plantation
- Developed Land



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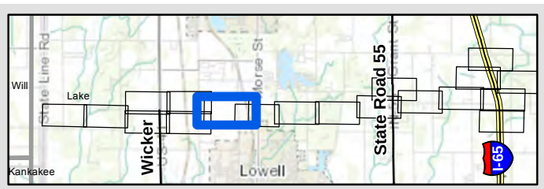
Township:33 N
Range: 8, 9 W
Project No: 1012012



Appendix C: Vegetation Cover Maps
Land Cover Report
Illiana Corridor
Lake County, Indiana

Grading System for Natural Communities
A Relatively stable or undisturbed
B Late successional or lightly disturbed
C Mid-successional or moderately to heavily disturbed
D Early successional or severely disturbed
E Very early successional or very severely disturbed

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GIS Analyst: christine.dittmar

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- Fencerow
- Tree Plantation
- Developed Land

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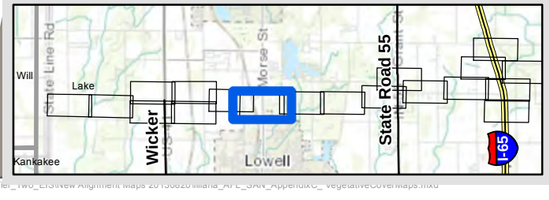
Township:33 N
Range: 8, 9 W
Project No: 1012012



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GIS Analyst: christine.dittmar

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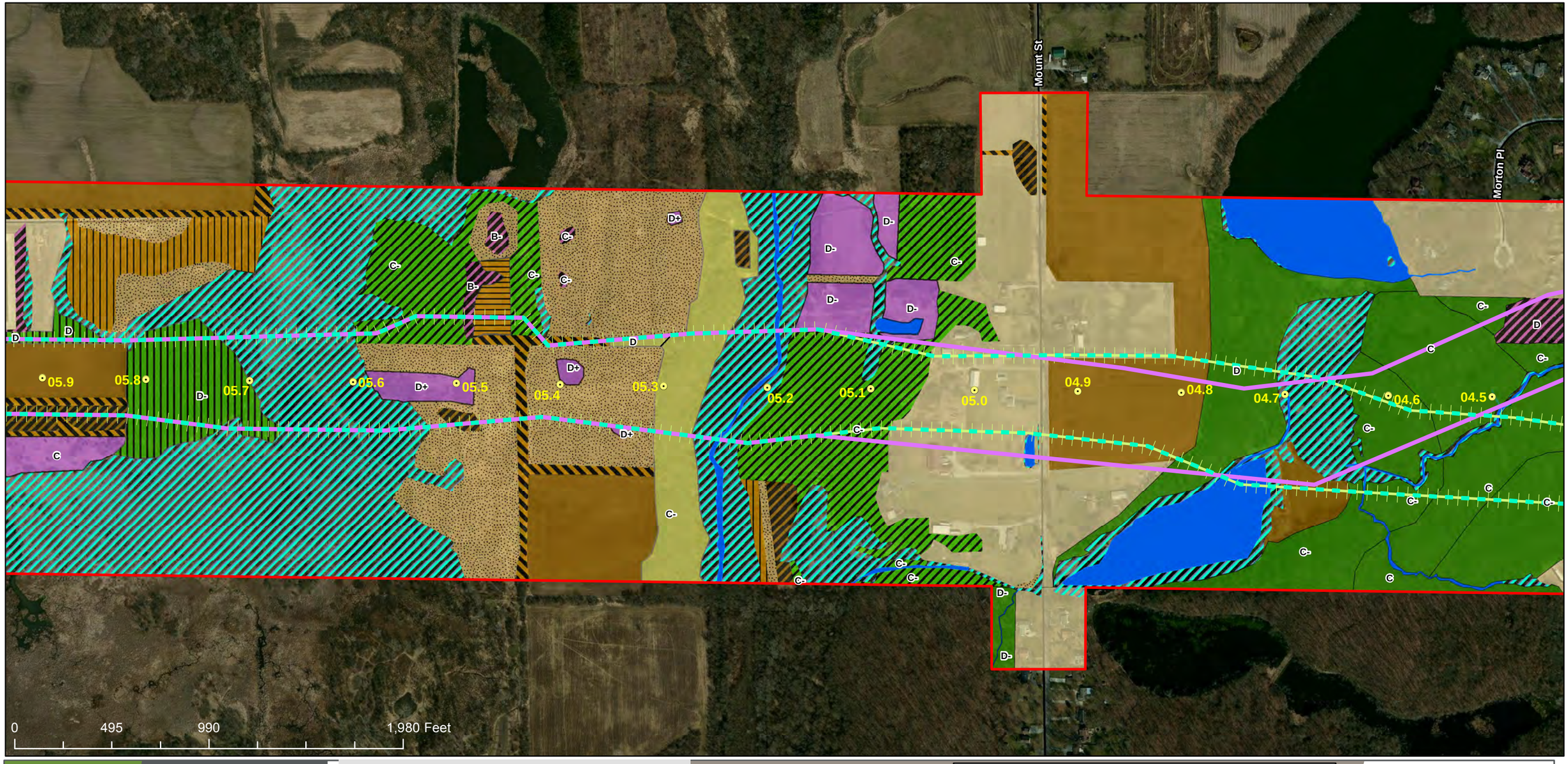

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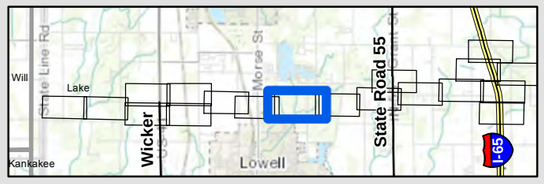
Township:33 N
Range: 8, 9 W
Project No: 1012012



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Lake County, Indiana

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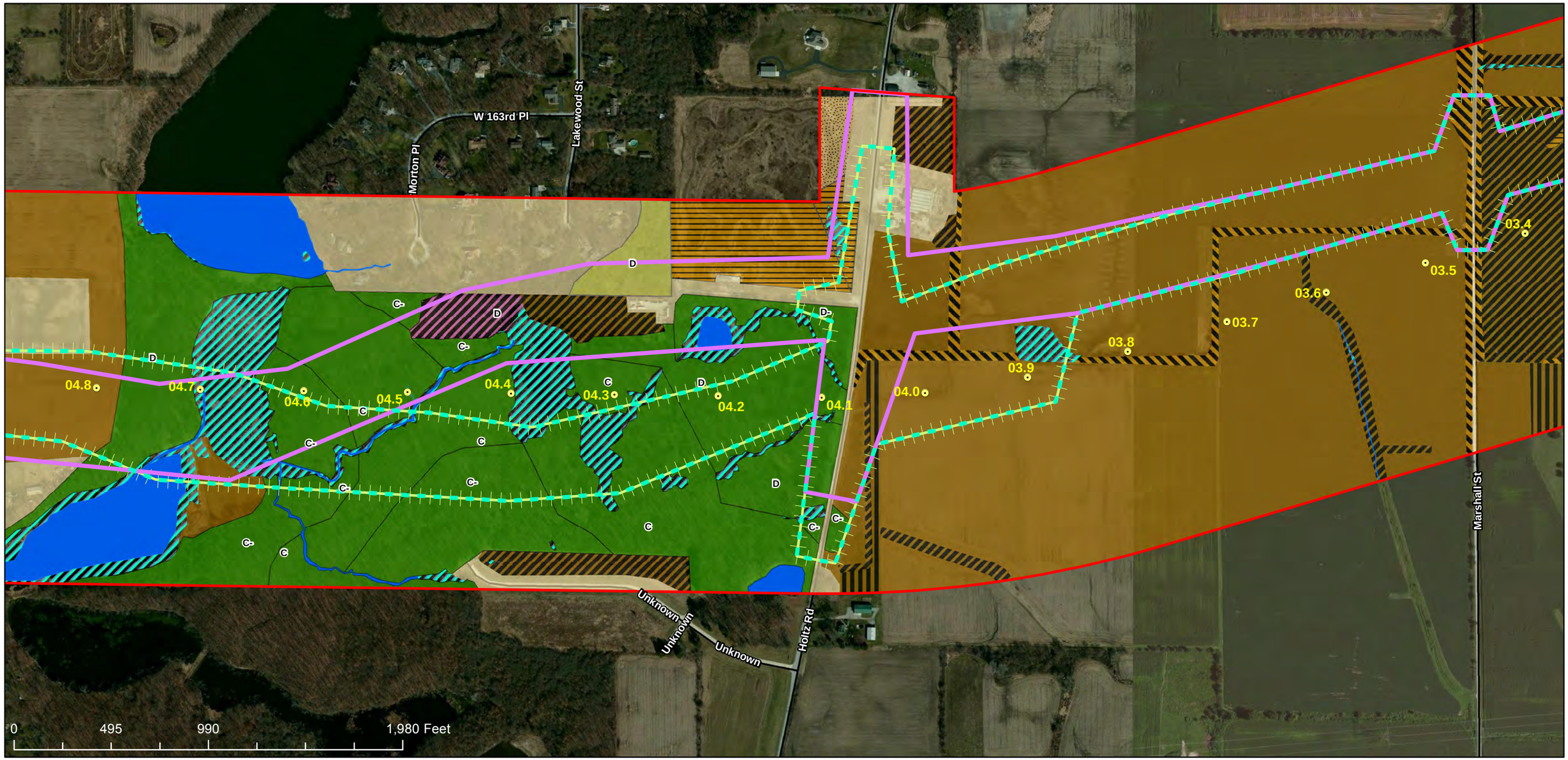

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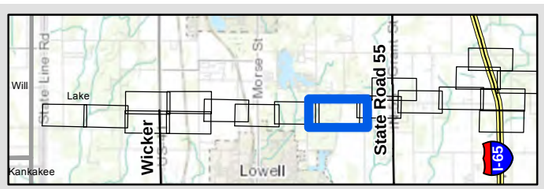
Township:33 N
Range: 8, 9 W
Project No: 1012012



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Lake County, Indiana

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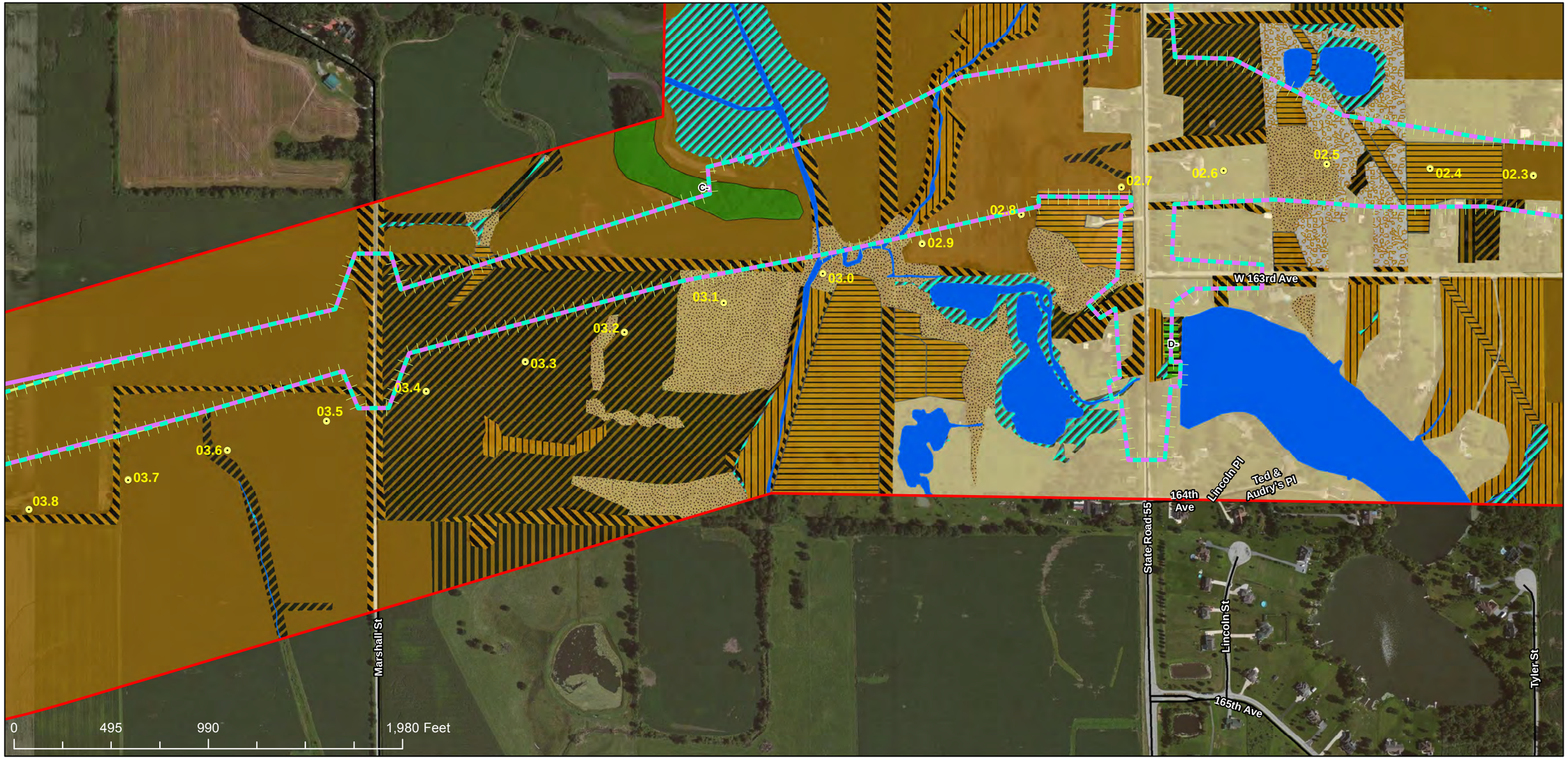

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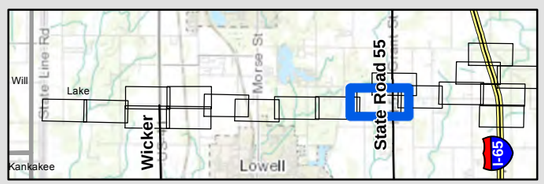
Township:33 N
Range: 8, 9 W
Project No: 1012012



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Land Cover Report
Illiana Corridor
Lake County, Indiana

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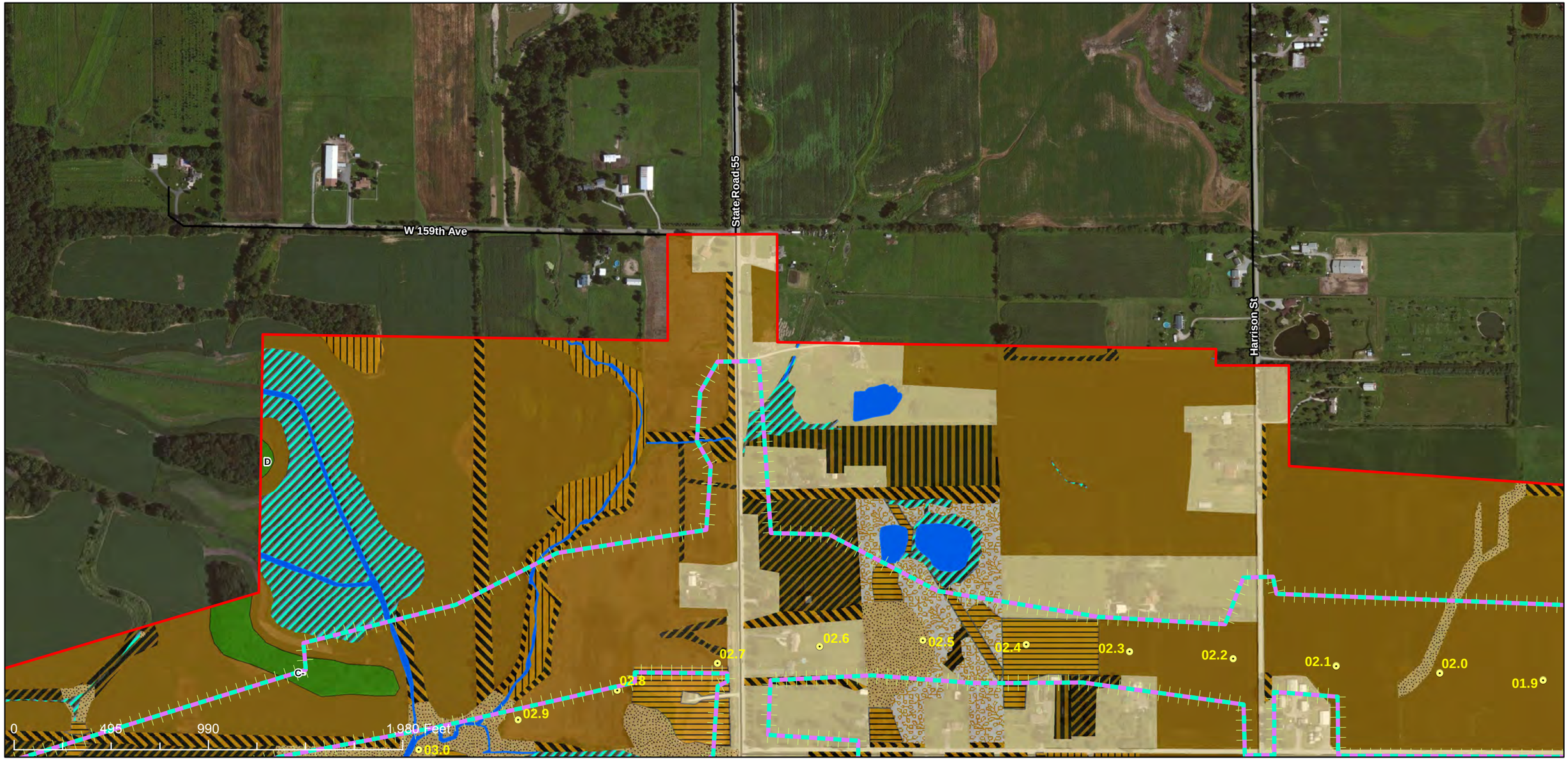

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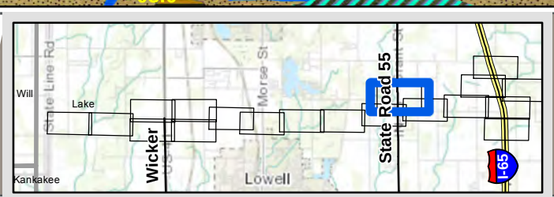
Township:33 N
Range: 8, 9 W
Project No: 1012012



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Lake County, Indiana

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GIS Analyst: christine.dittmar

Legend

- Project Corridor
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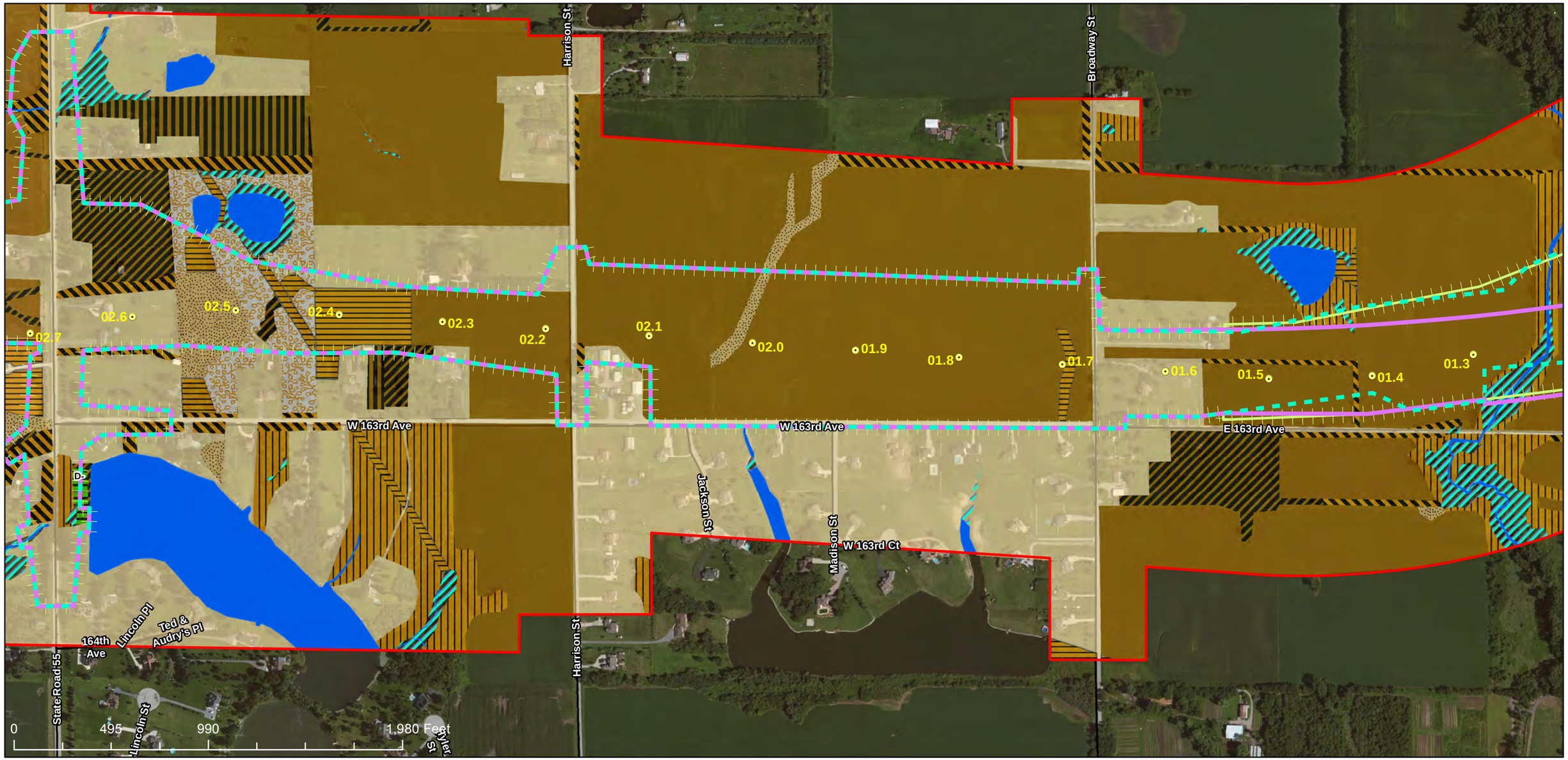

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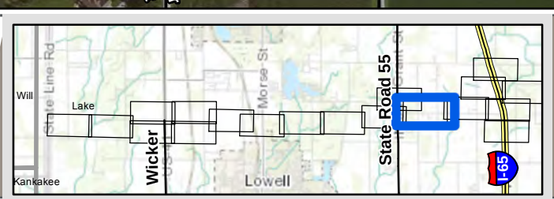
Township:33 N
Range: 8, 9 W
Project No: 1012012



Appendix C: Vegetation Cover Maps
Land Cover Report
Illiana Corridor
Lake County, Indiana

Grading System for Natural Communities
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GIS Analyst: christine.dittmar

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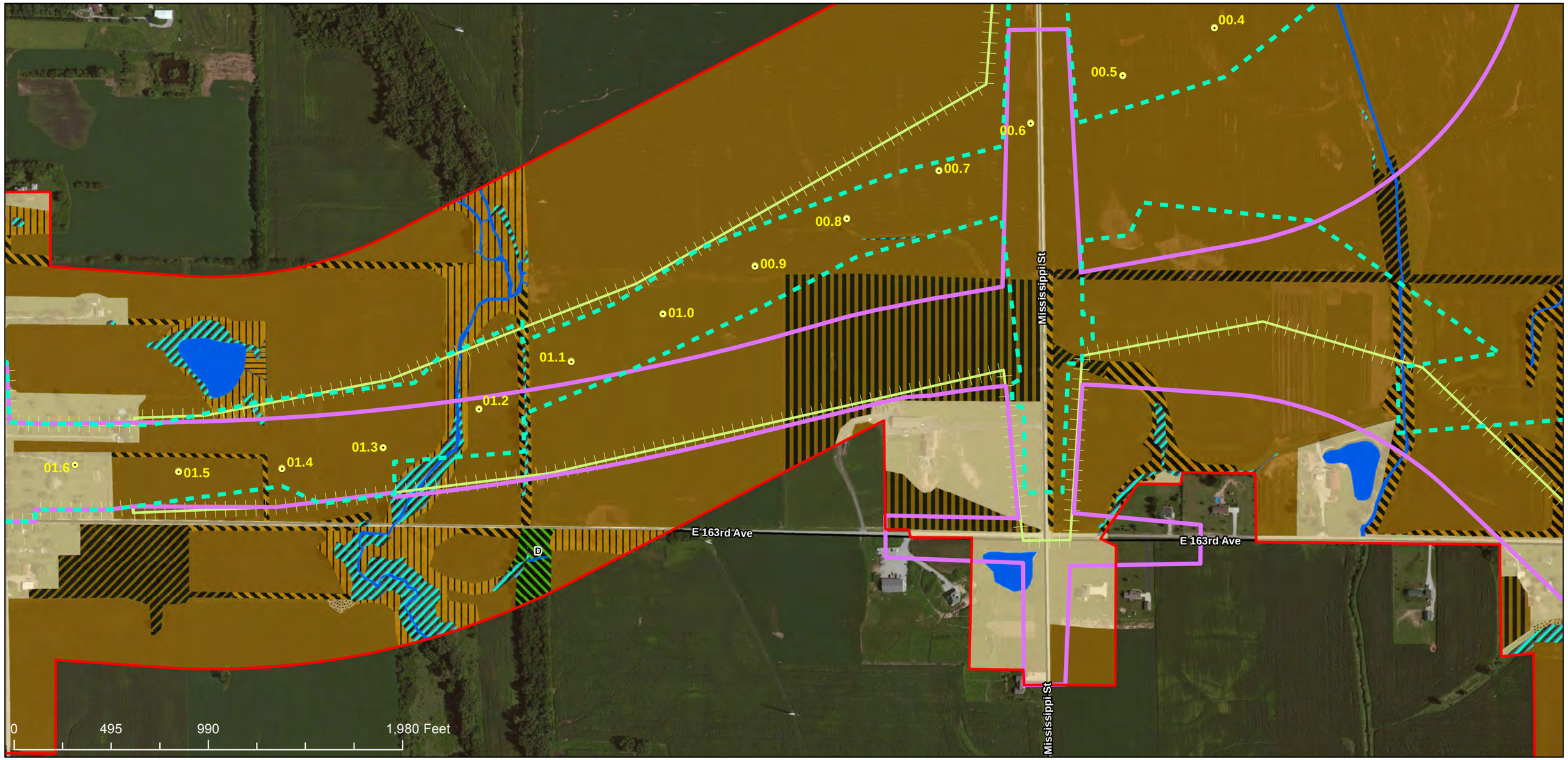

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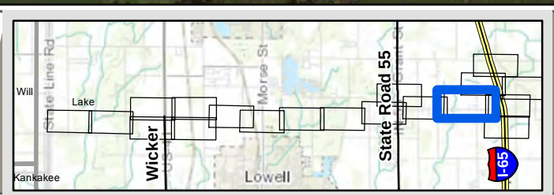
Township:33 N
Range: 8, 9 W
Project No: 1012012



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N-418

GIS Analyst: christine.dittmar

Legend

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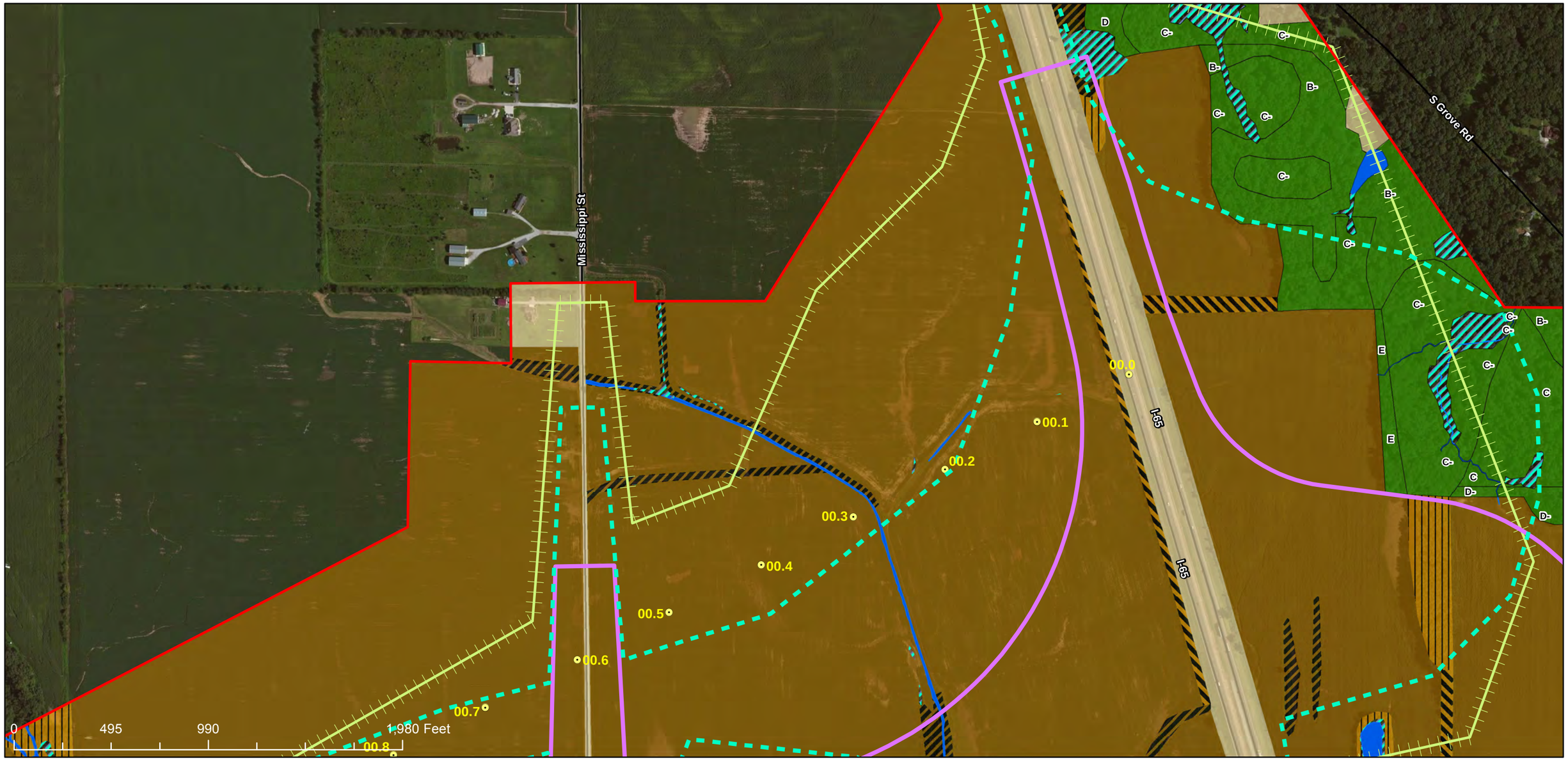

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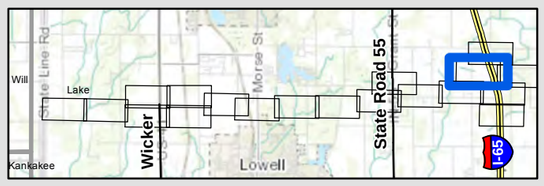
Township:33 N
Range: 8, 9 W
Project No: 1012012



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Township:33 N
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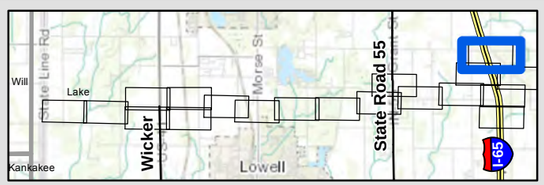

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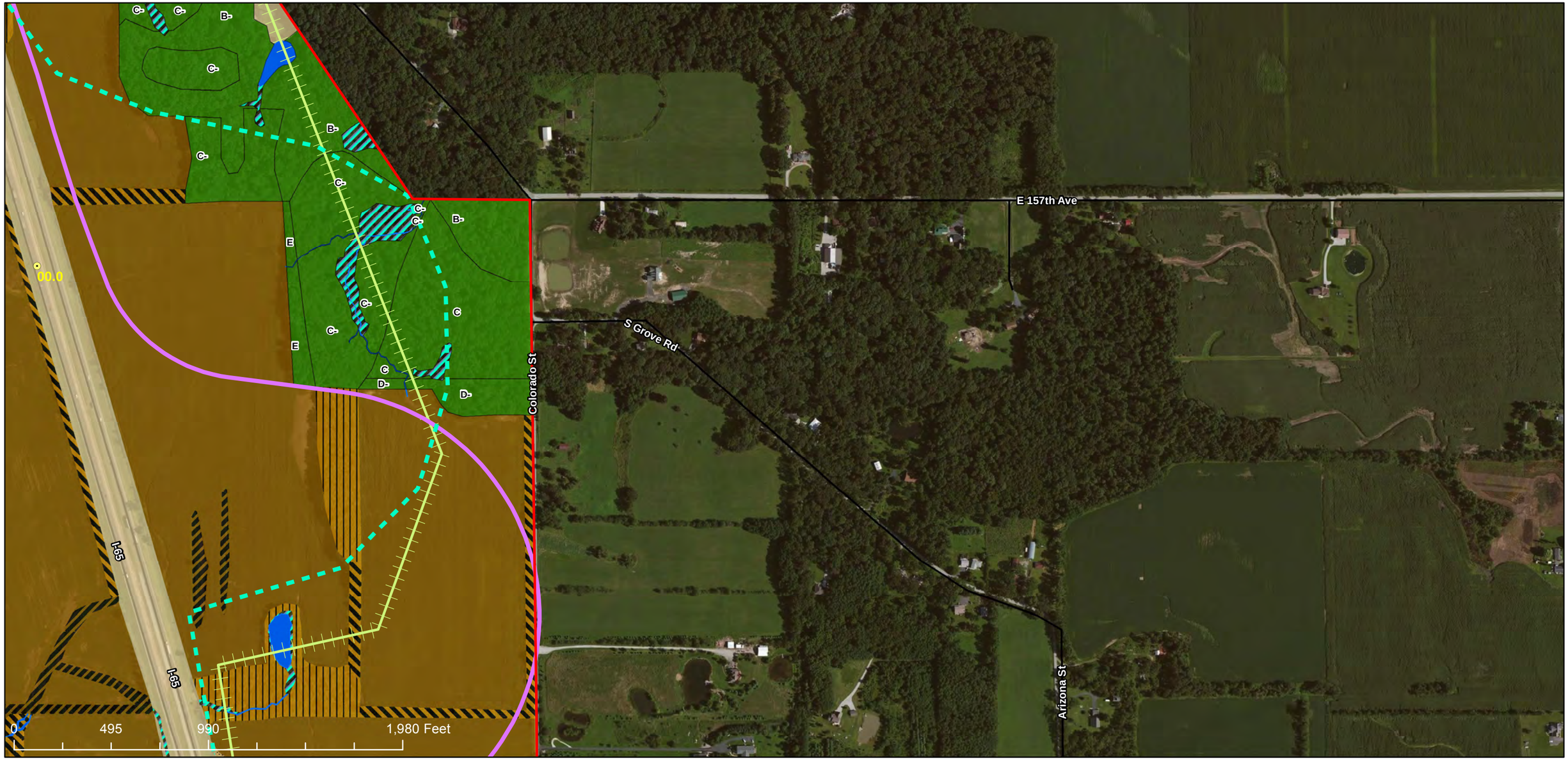

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Township:33 N
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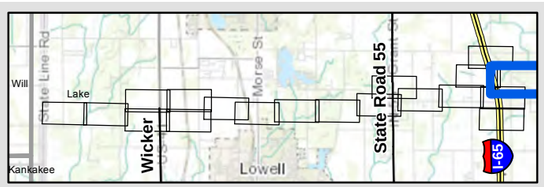
Project No: 1012012



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GIS Analyst: christine.dittmar

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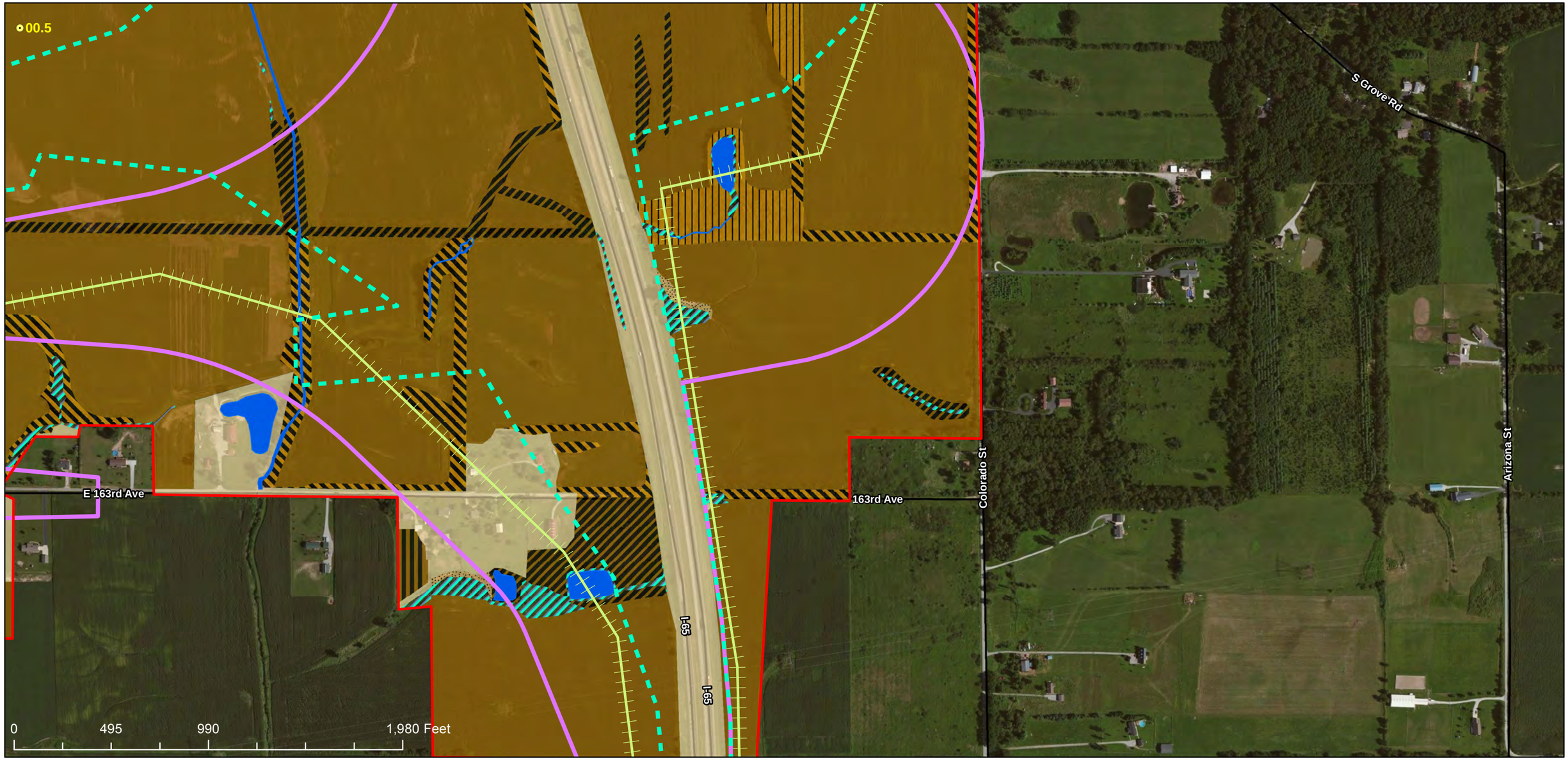
- Tree Plantation
- Developed Land



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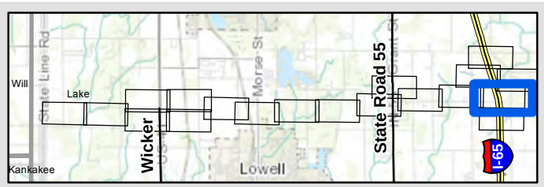
Township:33 N
Range: 8, 9 W
Project No: 1012012



Appendix C: Vegetation Cover Maps
Land Cover Report
Illiana Corridor
Lake County, Indiana

Grading System for Natural Communities
A Relatively stable or undisturbed
B Late successional or lightly disturbed
C Mid-successional or moderately to heavily disturbed
D Early successional or severely disturbed
E Very early successional or very severely disturbed

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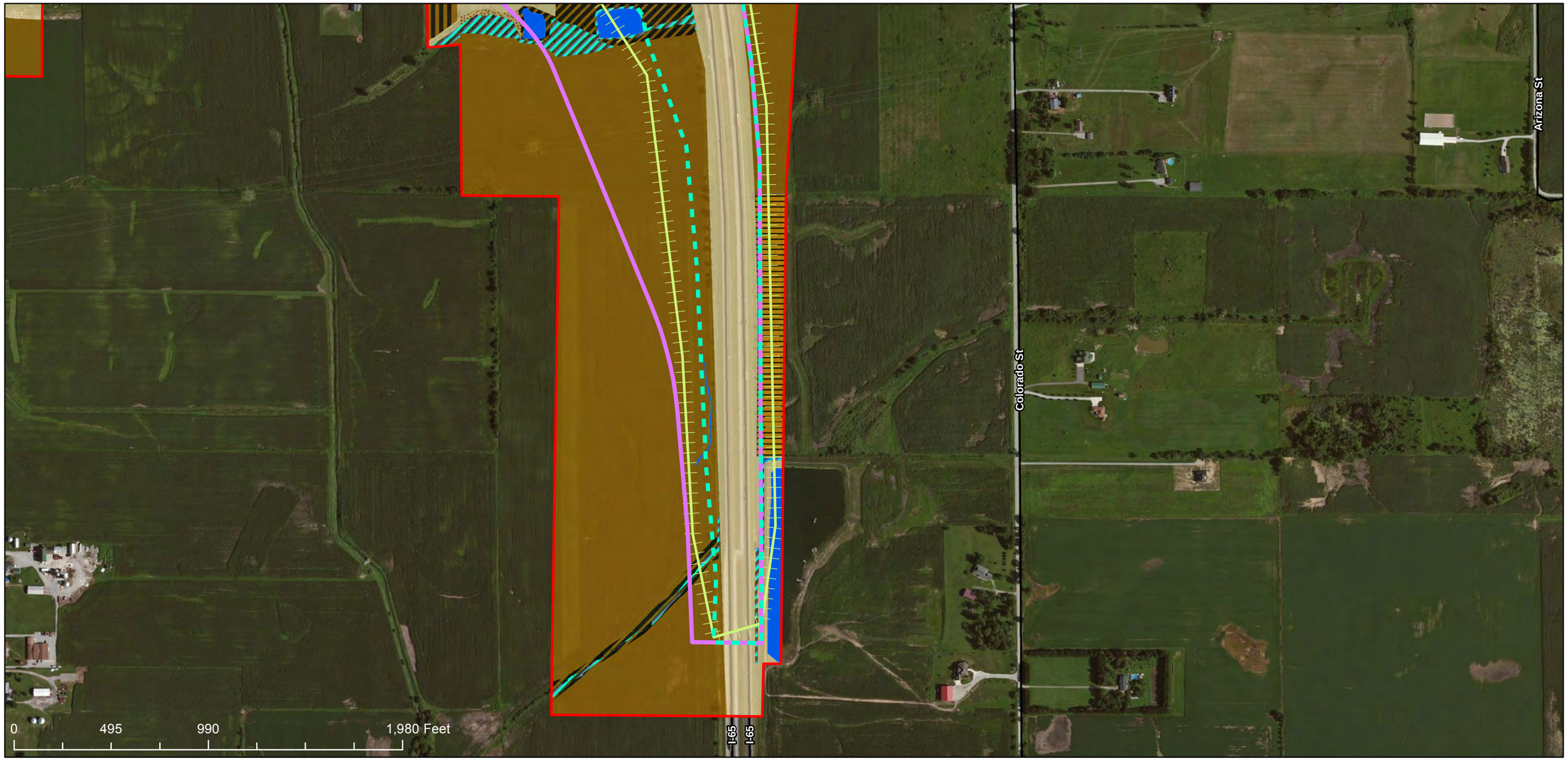
Data Sources:

GIS Analyst: christine.dittmar

Legend

- Project Corridor
- Alternative 1 Mainline Option
- Alternative 2 Mainline Option
- Alternative 3 Mainline Option
- B3 Stationing (Mile)
- Dry-Mesic Upland Forest
- Mesic Upland Forest
- Mesic Floodplain Forest
- Wet-Mesic Floodplain Forest
- Wet Floodplain Forest
- Mesic Prairie
- Dry-Mesic Prairie
- Dry-Mesic Savanna
- Existing Wetland
- Creek and Pond
- Cropland
- Pasture and Hayland
- Successional Field Non-Native Grassland
- Successional Field Forbland
- Successional Field Shrubland
- Successional Woodland
- Prairie Restoration / Planting
- Fencerow
- Tree Plantation
- Developed Land



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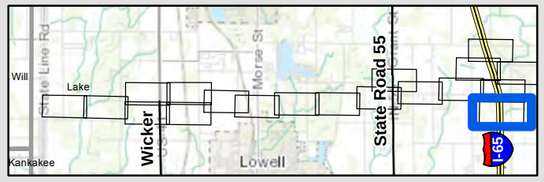
Township:33 N
Range: 8, 9 W
Project No: 1012012



Appendix C: Vegetation Cover Maps
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Illiana Corridor
Lake County, Indiana

Grading System for Natural Communities
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Data Sources:
GIS Analyst: christine.dittmar

Appendix D

Grade A and B Natural Areas (Sheets 1 – 19)

S State Line Rd

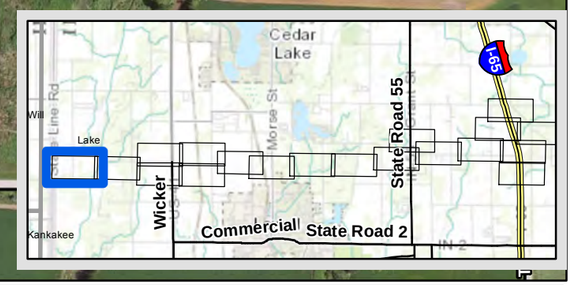
Sheffield Ave

W 165th Ave

11.7 11.6 11.5 11.4 11.3 11.2 11.1 11.0 10.9 10.8 10.7 10.6 10.5

S State Line Rd

W 169th Ave



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Township:33 N
Range: 8, 9 W
Project No: 1012012

Grading System for Natural Communities
A Relatively stable or undisturbed
B Late successional or lightly disturbed

0 250 500 1,000 Feet

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Appendix D: Grade A and B Natural Areas
Land Cover Report
Illiana Corridor
Lake County, Indiana

Legend
- Grade A and B Natural Areas
- Project Corridor
- Alternative 1 Mainline Option
- Alternative 2 Mainline Option
- Alternative 3 Mainline Option
- B3 Stationing (Mile)

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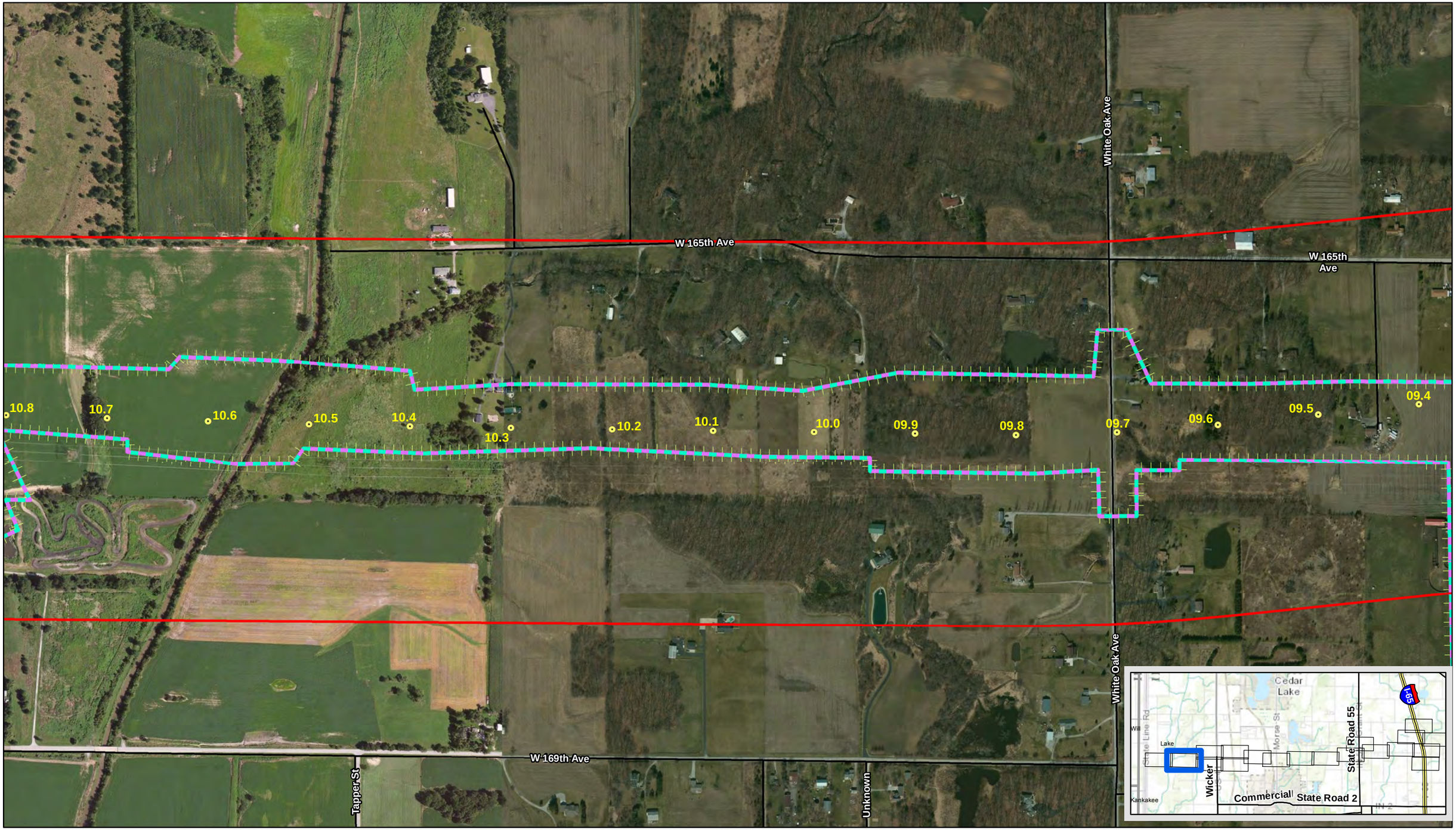

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Township:33 N
Range: 8, 9 W
Project No: 1012012

Grading System for Natural Communities
A Relatively stable or undisturbed
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0 250 500 1,000 Feet

Appendix D: Grade A and B Natural Areas
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Data Sources:

GIS Analyst: christine.dittmar

W 162nd Ave

White Oak Ave

Wicker Ave

Wicker Ave

W 165th Ave

White Oak Ave

09.7

09.6

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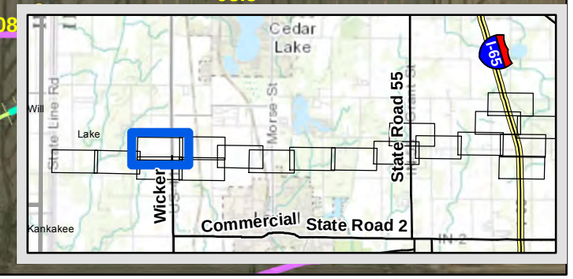

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Township:33 N
Range: 8, 9 W
Project No: 1012012

Grading System for Natural Communities
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0 250 500 1,000 Feet

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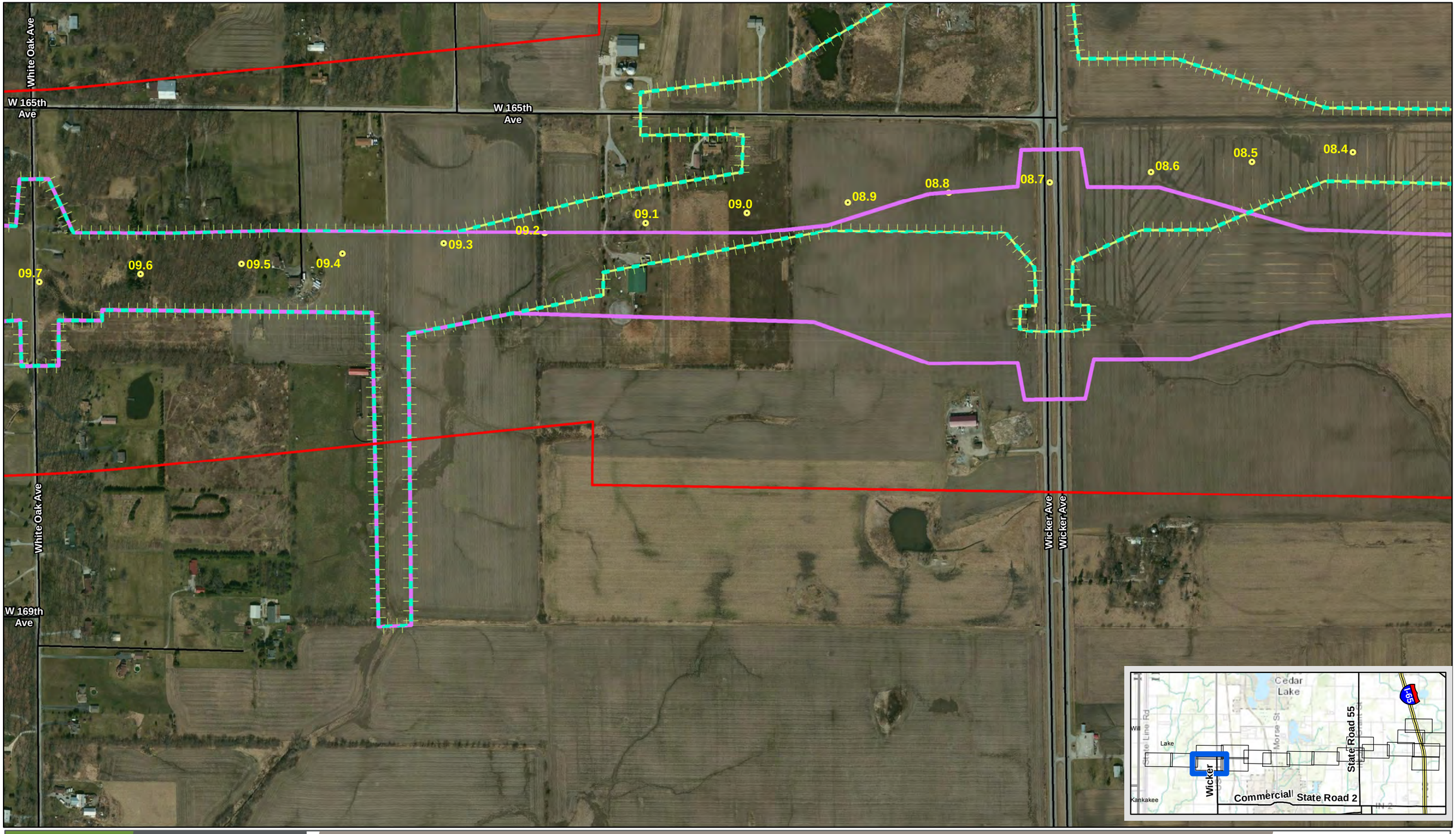
GIS Analyst: christine.dittmar



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Township:33 N
Range: 8, 9 W
Project No: 1012012

Grading System for Natural Communities
A Relatively stable or undisturbed
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0 250 500 1,000 Feet

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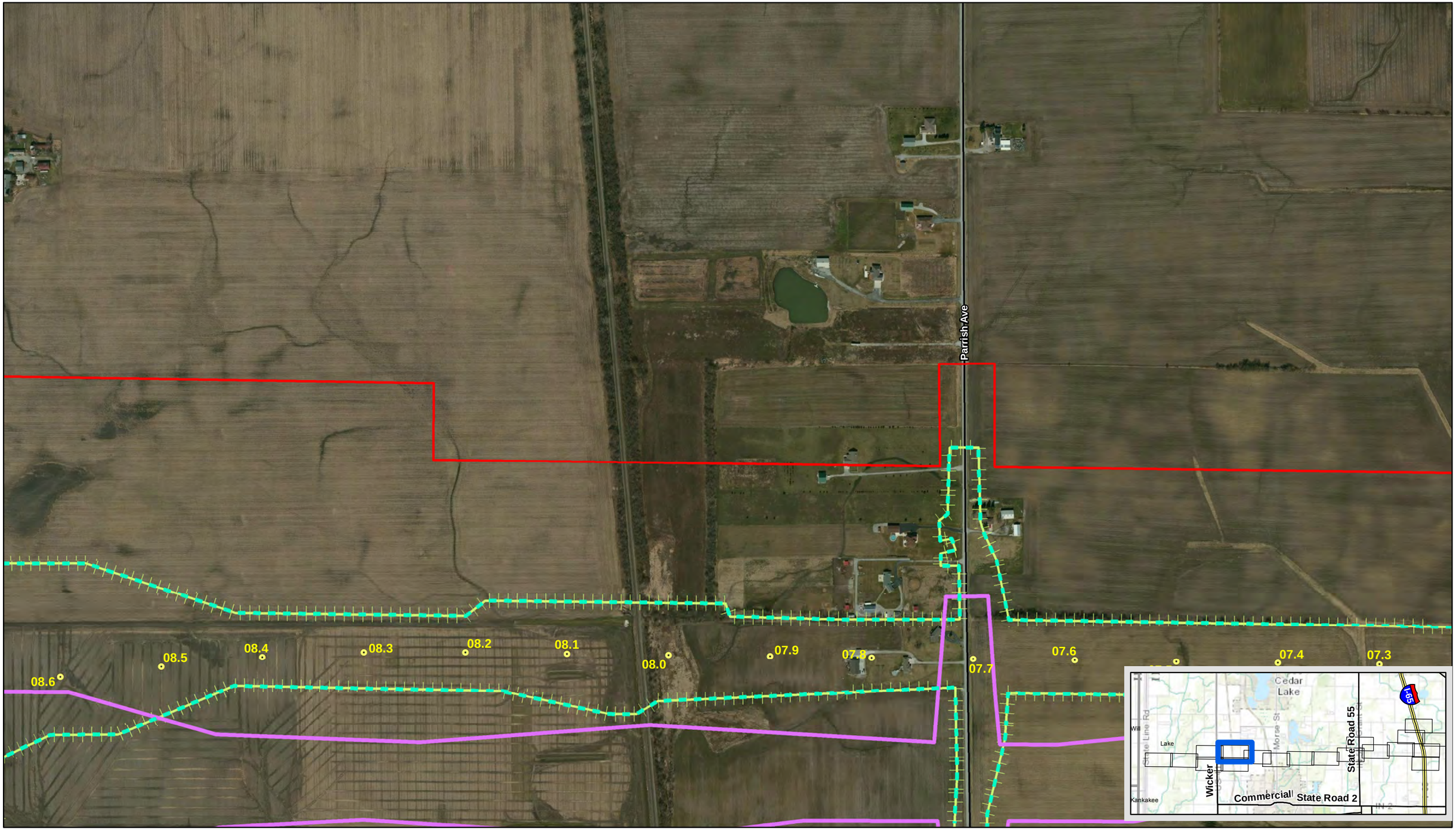

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Township:33 N
Range: 8, 9 W
Project No: 1012012

Grading System for Natural Communities
A Relatively stable or undisturbed
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GIS Analyst: christine.dittmar

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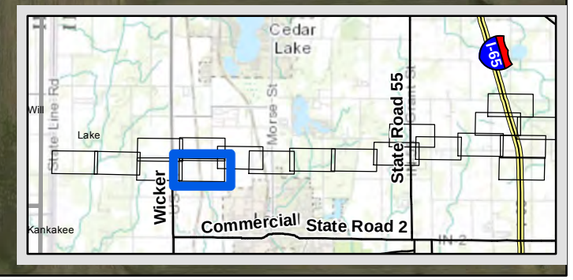
171st Ct
Parrish Ave



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Township:33 N
Range: 8, 9 W
Project No: 1012012

Grading System for Natural Communities
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0 250 500 1,000 Feet

Appendix D: Grade A and B Natural Areas
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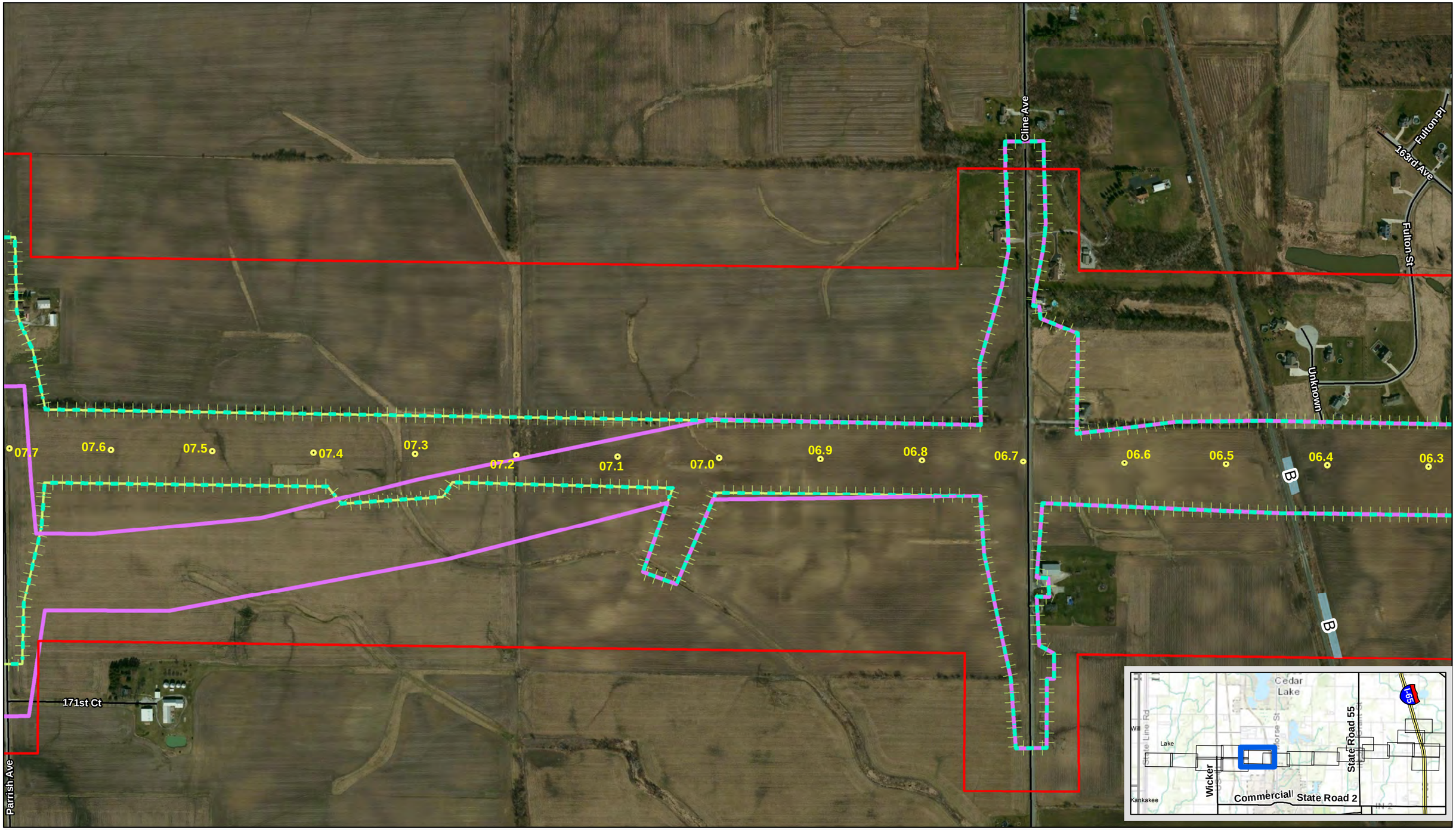

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Township:33 N
Range: 8, 9 W
Project No: 1012012

Grading System for Natural Communities
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0 250 500 1,000 Feet

Appendix D: Grade A and B Natural Areas
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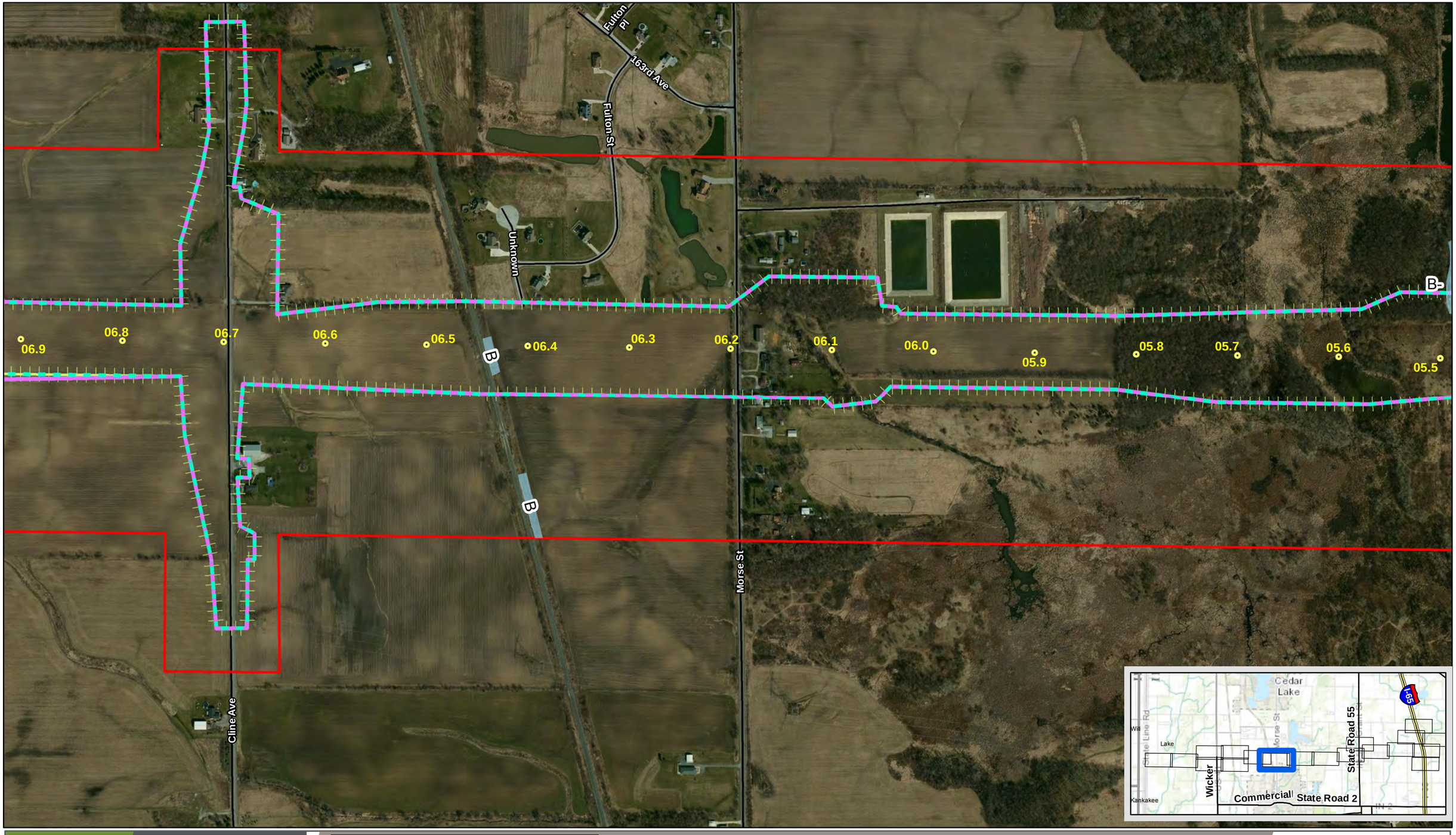

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Township:33 N
Range: 8, 9 W
Project No: 1012012

Grading System for Natural Communities
A Relatively stable or undisturbed
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0 250 500 1,000 Feet

Appendix D: Grade A and B Natural Areas
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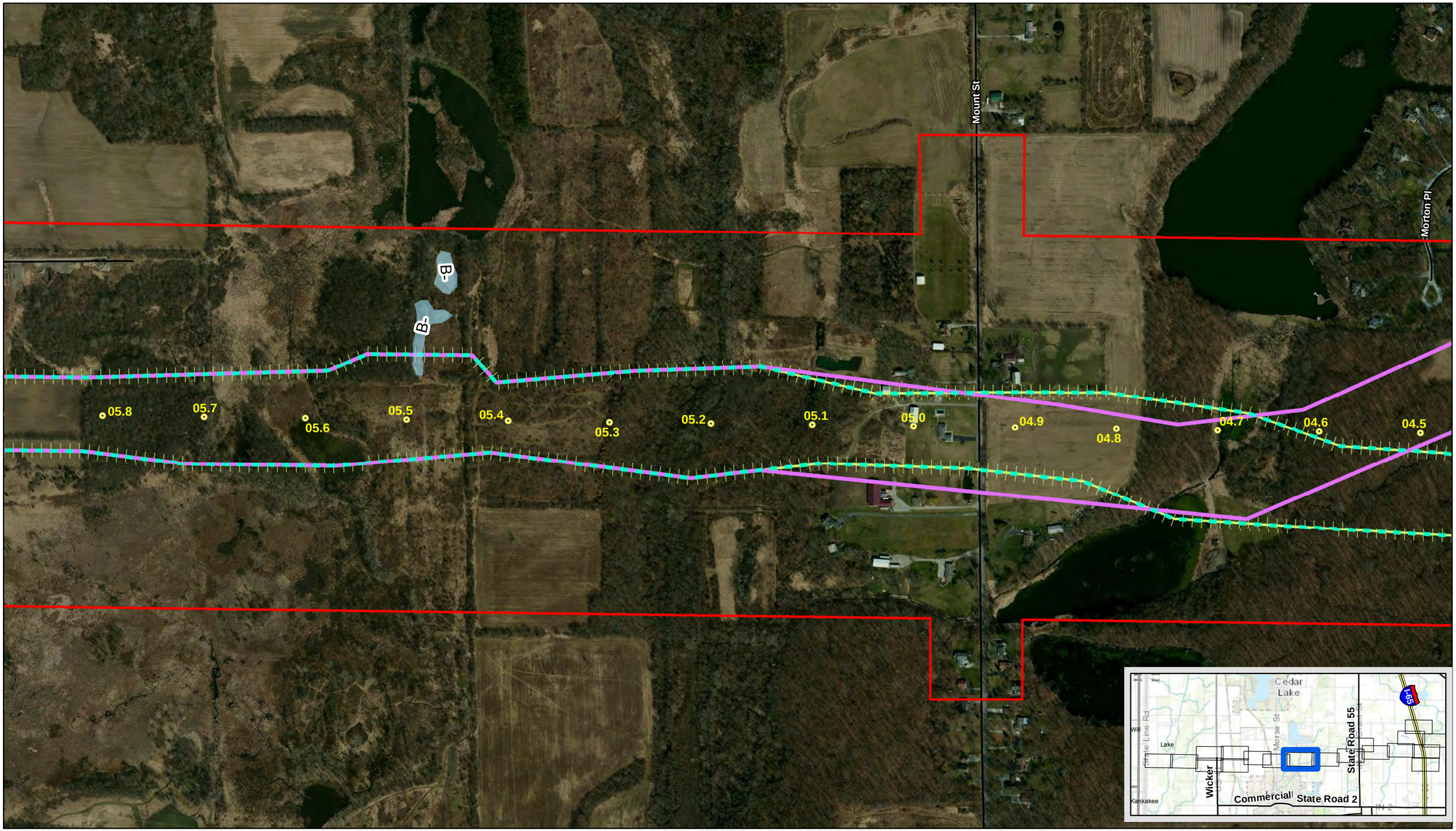

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Township:33 N
Range: 8, 9 W
Project No: 1012012

Grading System for Natural Communities
A Relatively stable or undisturbed
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0 250 500 1,000 Feet

Appendix D: Grade A and B Natural Areas
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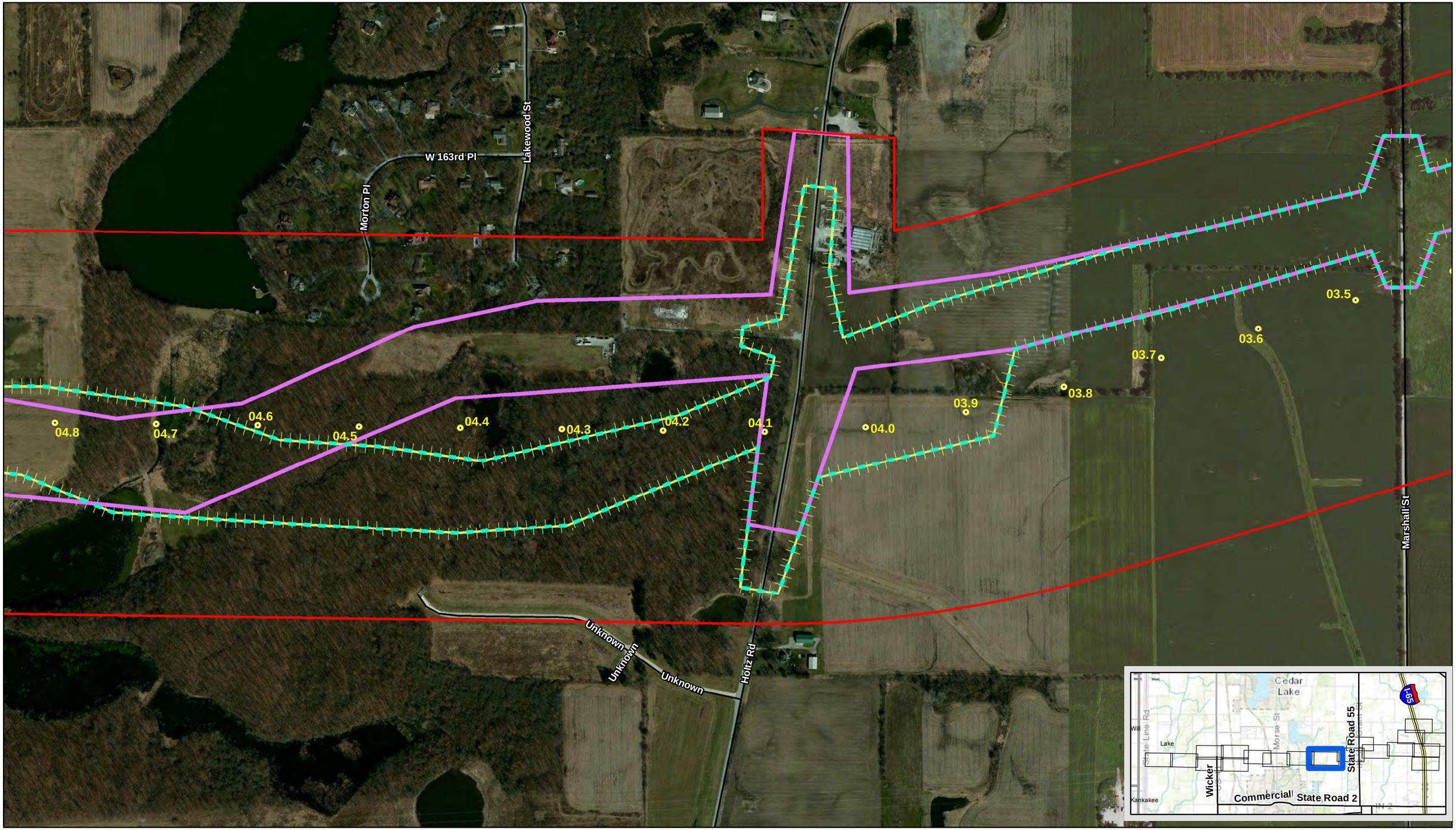

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Township:33 N
Range: 8, 9 W
Project No: 1012012

Grading System for Natural Communities
A Relatively stable or undisturbed
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0 250 500 1,000 Feet

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Appendix D: Grade A and B Natural Areas
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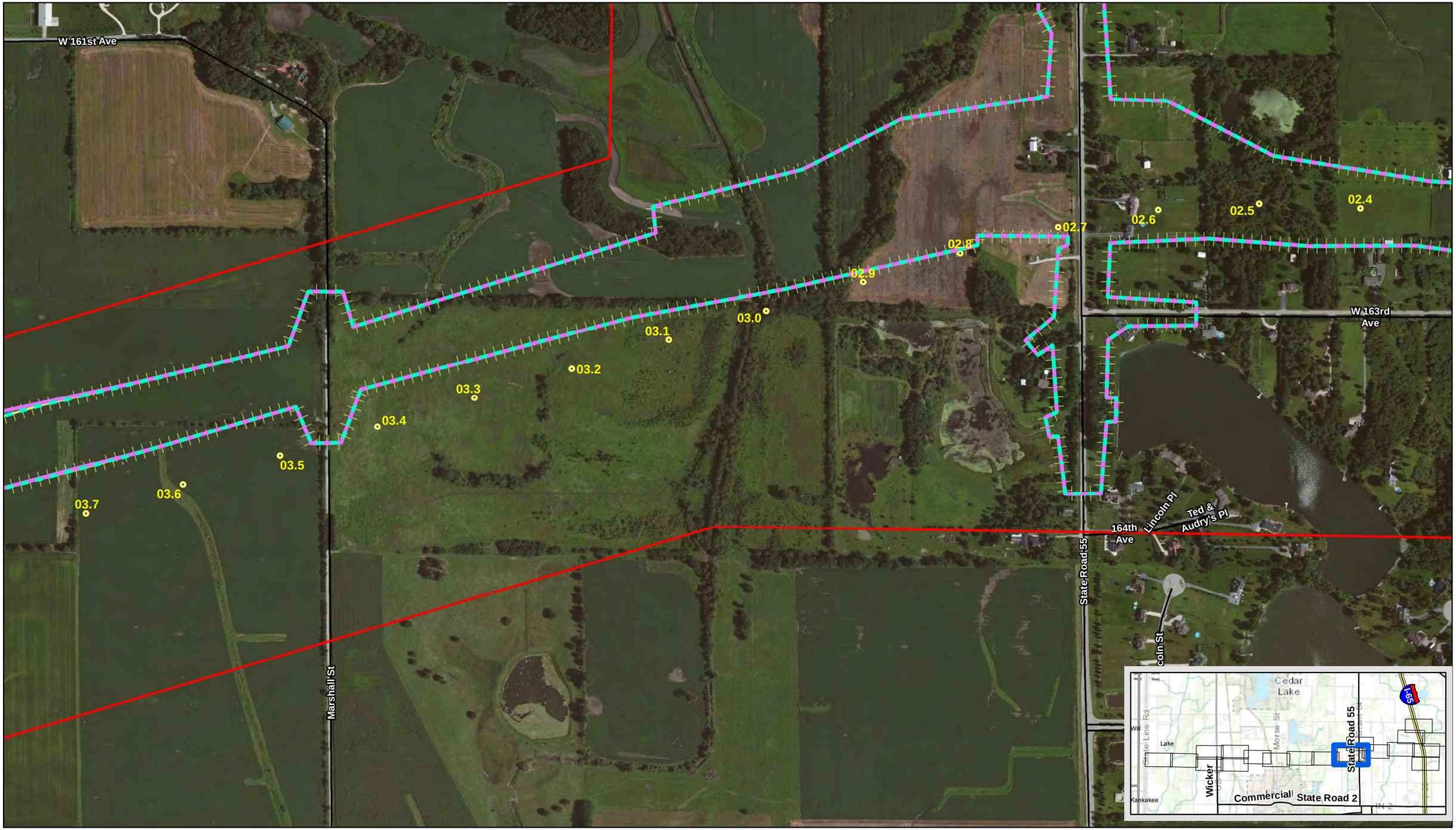

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Township:33 N
Range: 8, 9 W
Project No: 1012012

Grading System for Natural Communities
A Relatively stable or undisturbed
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0 250 500 1,000 Feet

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Data Sources:

GIS Analyst: christine.dittmar

W 159th Ave

State Road 55

Harrison St

W 163rd Ave

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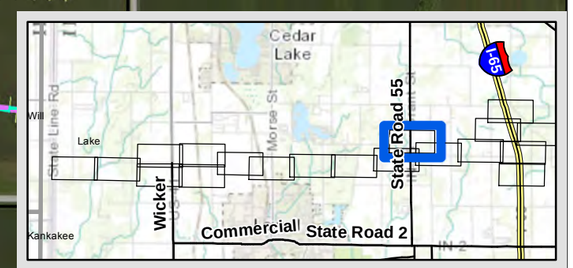

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Township:33 N
Range: 8, 9 W
Project No: 1012012

Grading System for Natural Communities
A Relatively stable or undisturbed
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0 250 500 1,000 Feet

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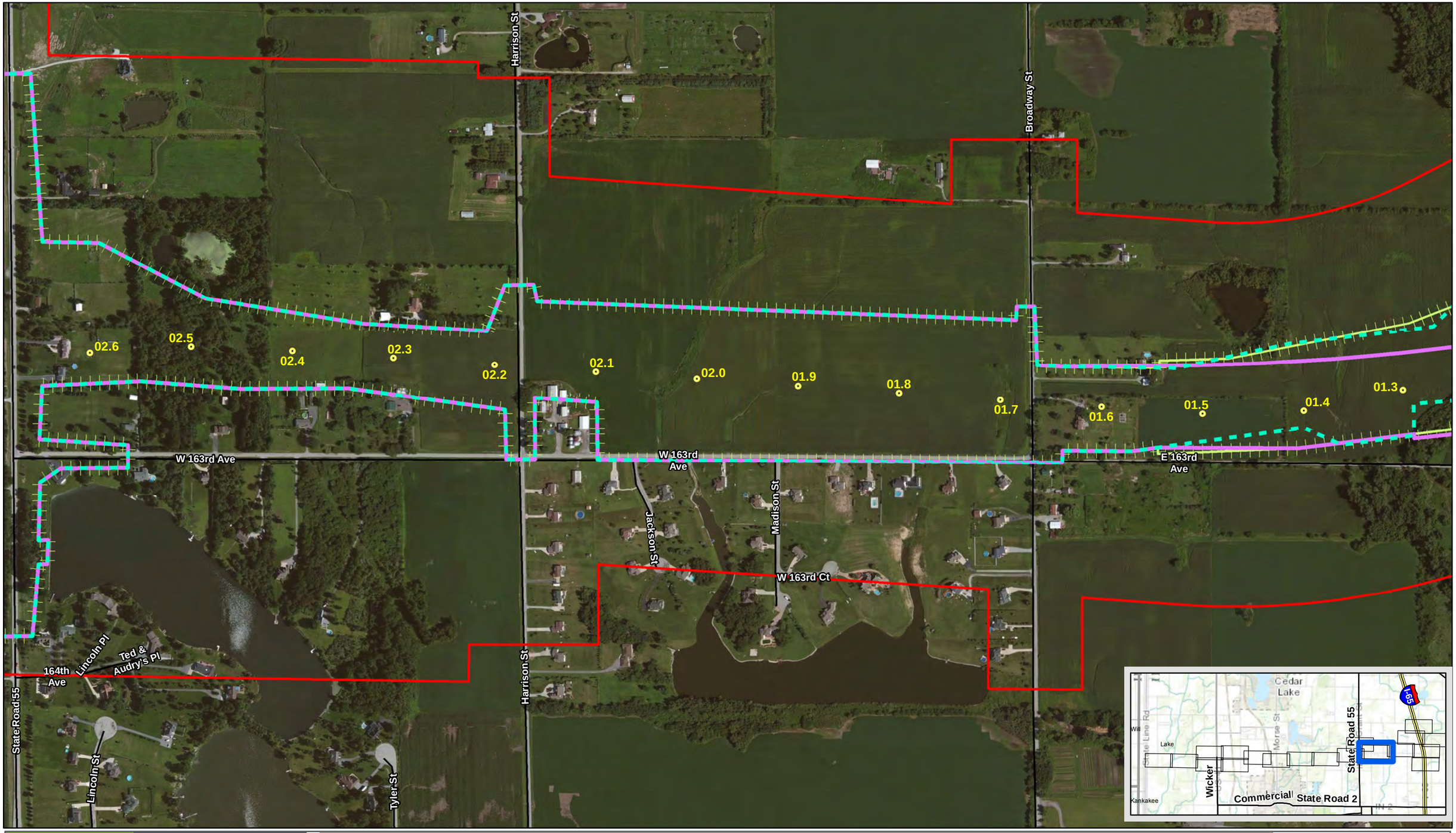

Grading System for Natural Communities
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Appendix D: Grade A and B Natural Areas
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Lake County, Indiana

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N W E S

Township:33 N
Range: 8, 9 W
Project No: 1012012

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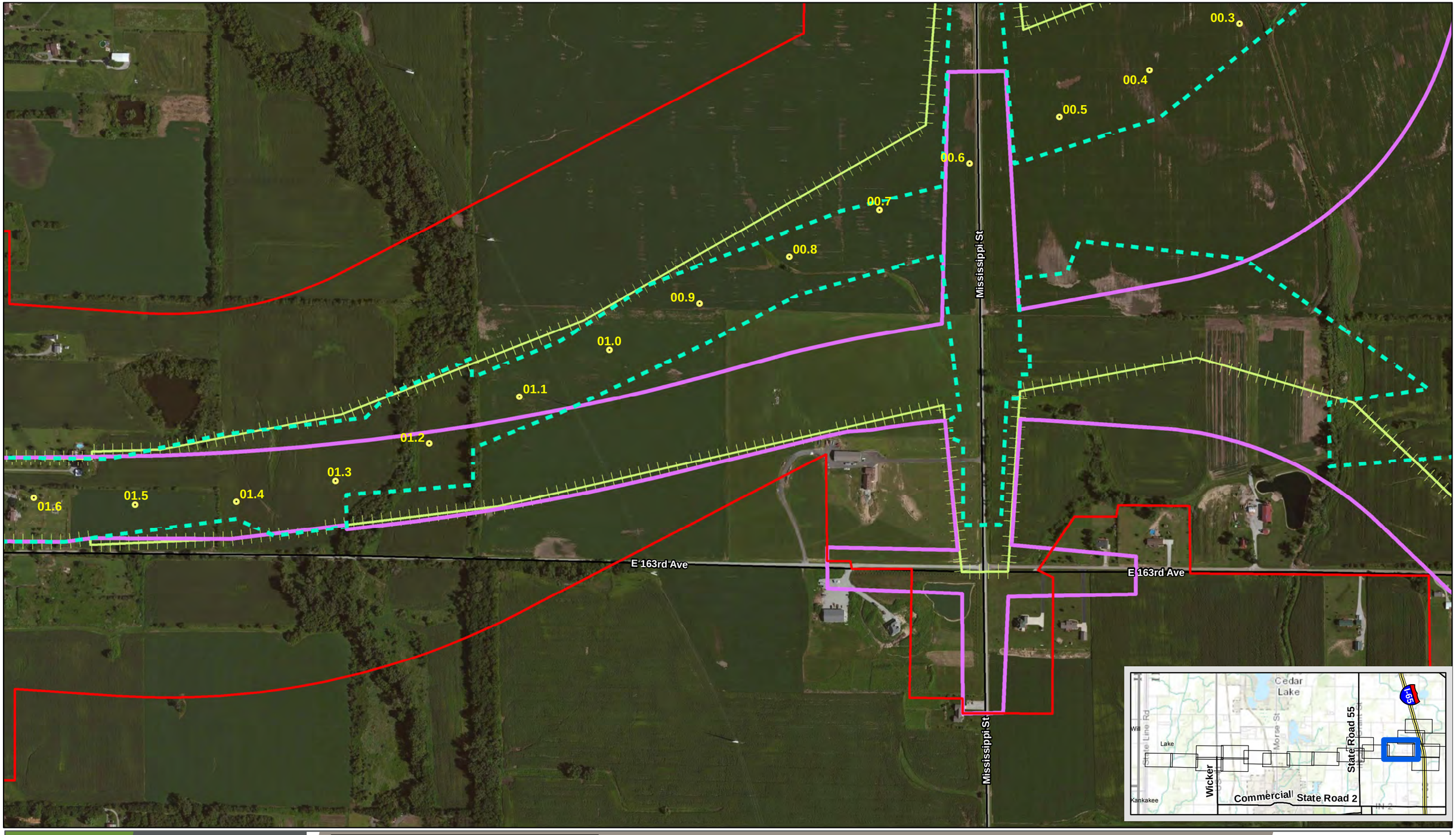

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Township:33 N
Range: 8, 9 W
Project No: 1012012

Grading System for Natural Communities
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0 250 500 1,000 Feet

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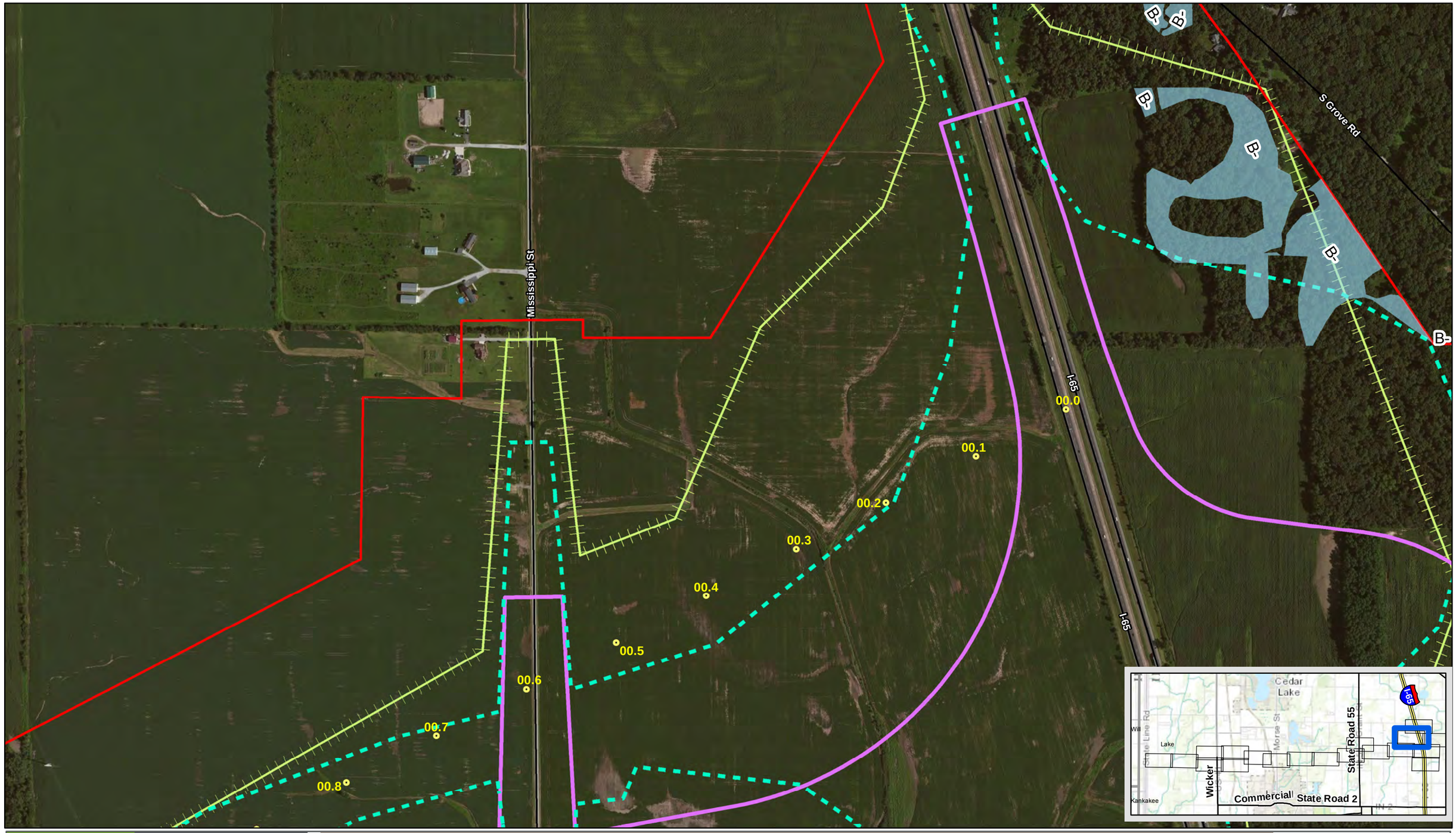

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Range: 8, 9 W
Project No: 1012012

Grading System for Natural Communities
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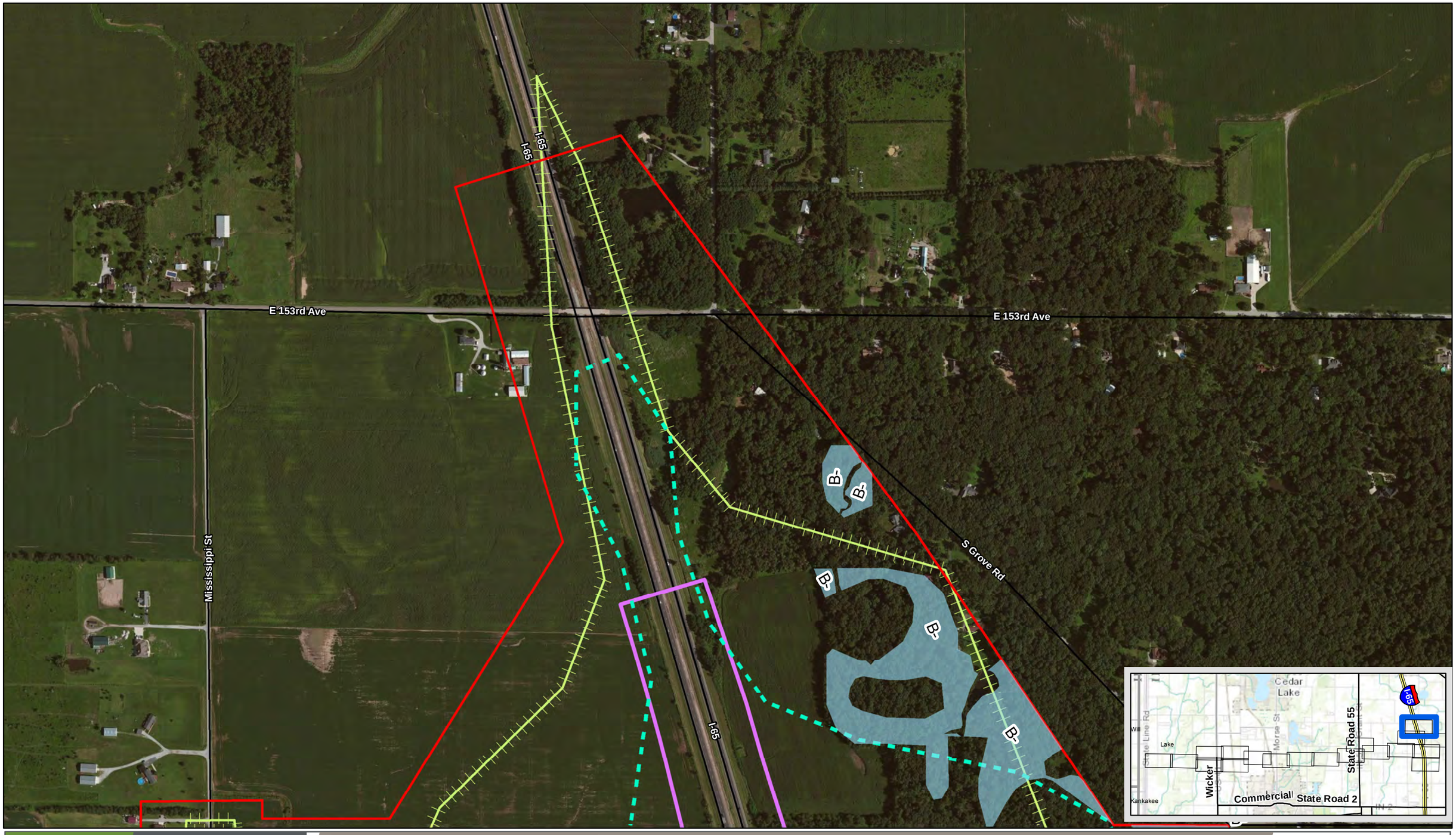
Data Sources:
GIS Analyst: christine.dittmar



N
W E
S

Township:33 N
Range: 8, 9 W
Project No: 1012012

Grading System for Natural Communities
A Relatively stable or undisturbed
B Late successional or lightly disturbed

0 250 500 1,000 Feet

Appendix D: Grade A and B Natural Areas
Land Cover Report
Illiana Corridor
Lake County, Indiana

Legend
- Grade A and B Natural Areas
- Project Corridor
- Alternative 1 Mainline Option
- Alternative 2 Mainline Option
- Alternative 3 Mainline Option
- B3 Stationing (Mile)

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Data Sources:

GIS Analyst: christine.dittmar

B-

B-

B-

B-

E 157th Ave

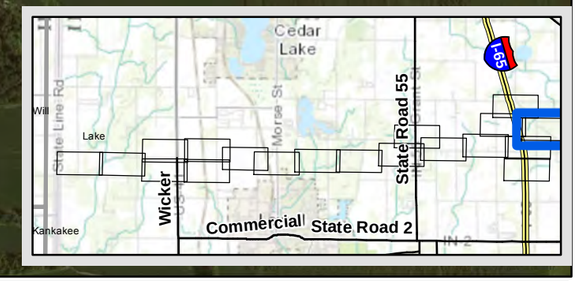
S Grove Rd

I-65

I-65

Colorado St

Arizona St



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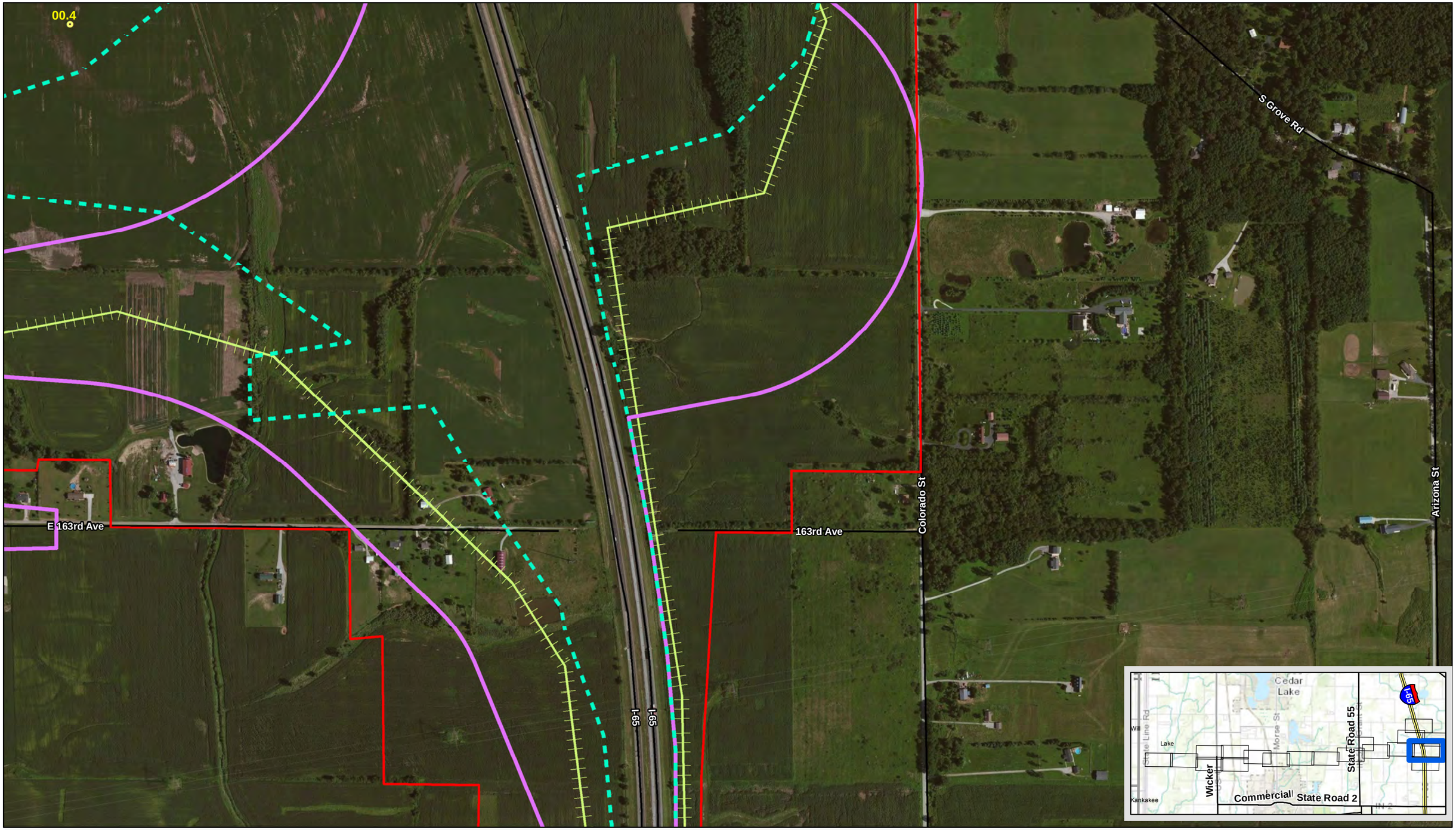

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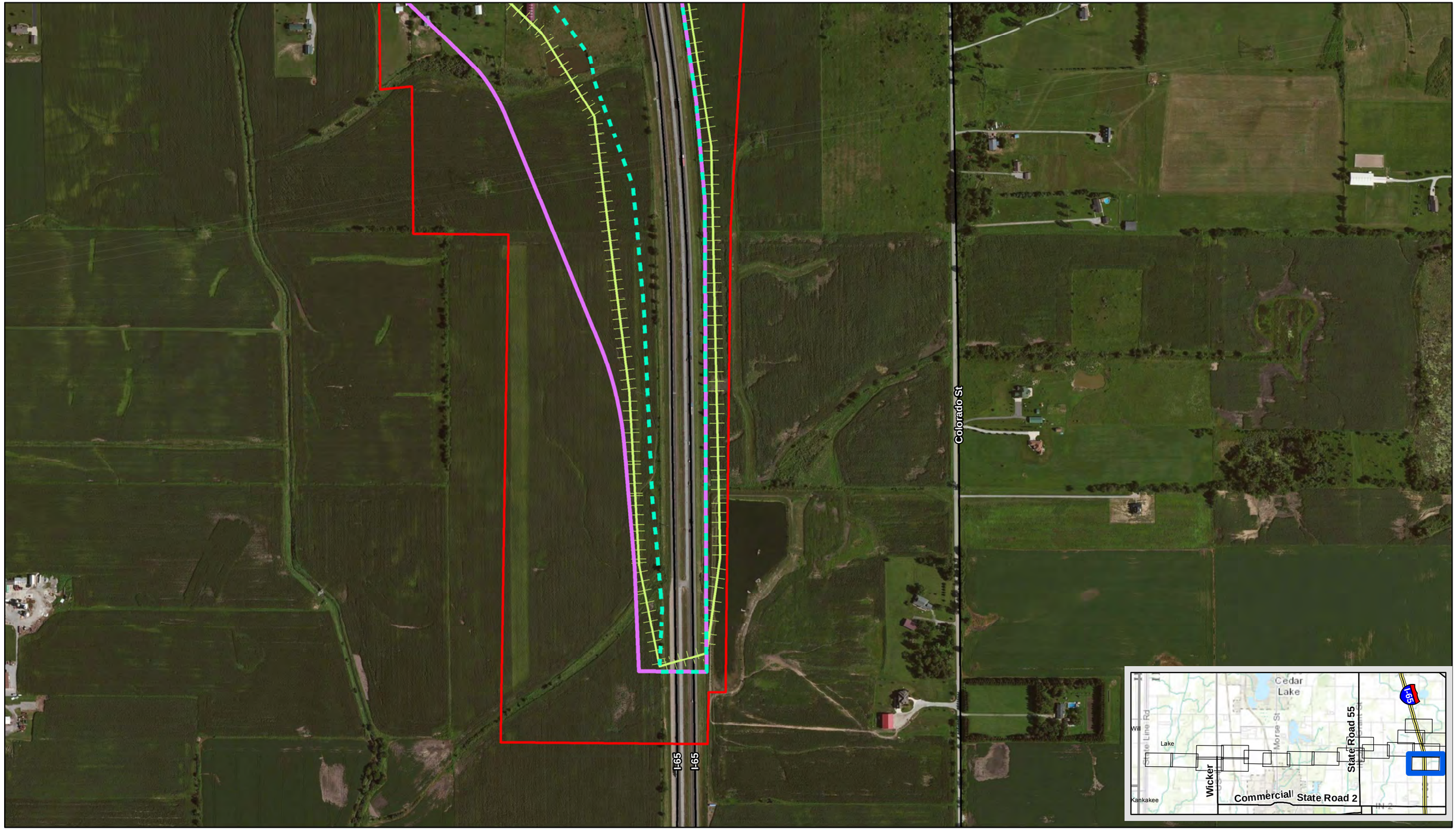

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Data Sources:

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Appendix E

Floristic Quality Assessments for Selected Areas

Site: Illiana expressway corridor
Locale: Lake County, Indiana
Date: September 20, 2012 4.0 hours
April 17, 2013 0.5 hours
April 19, 2013 1.0 hours
April 30, 2013 0.5 hours
May 2, 2013 0.5 hours
By: S. Namestnik, A. Lima, C. White, Nate Engbrecht
File: r:\Projects\10\1012\1012012_IllianaExpressway2010\Data\Vegetation Surveys\Uplands\20130219_Dry-mesic forest inventory.inv
Notes: Decent Quality Dry-mesic Forest Inventory (compiled)

FLORISTIC QUALITY DATA		Native			Adventive		
134	NATIVE SPECIES	Tree	20	13.1%	Tree	3	2.0%
153	Total Species	Shrub	10	6.5%	Shrub	7	4.6%
3.9	NATIVE MEAN C	W-Vine	6	3.9%	W-Vine	1	0.7%
3.5	W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
45.6	NATIVE FQI	P-Forb	58	37.9%	P-Forb	1	0.7%
42.7	W/Adventives	B-Forb	2	1.3%	B-Forb	1	0.7%
1.5	NATIVE MEAN W	A-Forb	13	8.5%	A-Forb	3	2.0%
1.6	W/Adventives	P-Grass	12	7.8%	P-Grass	3	2.0%
AVG:	Faculative (-)	A-Grass	1	0.7%	A-Grass	0	0.0%
		P-Sedge	8	5.2%	P-Sedge	0	0.0%
		A-Sedge	0	0.0%	A-Sedge	0	0.0%
		Cryptogam	4	2.6%			

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
ACARHO	0	Acalypha rhomboidea	3	FACU	Nt A-Forb	THREE-SEEDED MERCURY
ACENEG	0	Acer negundo	-2	FACW-	Nt Tree	BOX ELDER
AGRGRY	2	Agrimonia gryposepala	2	FACU+	Nt P-Forb	TALL AGRIMONY
AGRPAR	7	Agrimonia parviflora	-1	FAC+	Nt P-Forb	SWAMP AGRIMONY
AGRPUB	5	Agrimonia pubescens	5	UPL	Nt P-Forb	SOFT AGRIMONY
AGRPER	3	Agrostis perennans	1	FAC-	Nt P-Grass	THIN GRASS
ALLPET	0	ALLIARIA PETIOLATA	0	FAC	Ad B-Forb	GARLIC MUSTARD
ALLCAN	2	Allium canadense	3	FACU	Nt P-Forb	WILD ONION
ALLTRB	6	Allium tricoccum burdickii	3	[FACU]	Nt P-Forb	BURDICK'S LEEK
AMBARE	0	Ambrosia artemisiifolia elatior	3	FACU	Nt A-Forb	COMMON RAGWEED
AMPBRB	4	Amphicarpaea bracteata	0	FAC	Nt P-Forb	UPLAND HOG PEANUT
AMPBRC	5	Amphicarpaea bracteata comosa	-3	[FACW]	Nt P-Forb	LOWLAND HOG PEANUT
ANETHA	7	Anemonella thalictroides	5	UPL	Nt P-Forb	RUE ANEMONE
ARELAT	8	Arenaria lateriflora	5	UPL	Nt P-Forb	WOOD SANDWORT
ARITRI	4	Arisaema triphyllum	-2	FACW-	Nt P-Forb	JACK-IN-THE-PULPIT
ASTLAT	4	Aster lateriflorus	-2	FACW-	Nt P-Forb	SIDE-FLOWERING ASTER
ASTSAS	5	Aster sagittifolius	5	UPL	Nt P-Forb	ARROW-LEAVED ASTER
ASTSAD	2	Aster sagittifolius drummondii	3	[FACU]	Nt P-Forb	DRUMMOND'S ASTER
ASTSIS	3	Aster simplex	-5	OBL	Nt P-Forb	PANICLED ASTER
ATHFIM	8	Athyrium filix-femina michauxii	0	FAC	Cryptogam	LADY FERN
BERTHU	0	BERBERIS THUNBERGII	4	FACU-	Ad Shrub	JAPANESE BARBERRY
BIDFRO	1	Bidens frondosa	-3	FACW	Nt A-Forb	COMMON BEGGAR'S TICKS
BIDVUL	1	Bidens vulgata	3	FACU	Nt A-Forb	TALL BEGGAR'S TICKS
BOECYC	2	Boehmeria cylindrica	-5	OBL	Nt P-Forb	FALSE NETTLE
BOTDIS	6	Botrychium dissectum	0	FAC	Cryptogam	CUT-LEAVED GRAPE FERN
BROPUB	5	Bromus pubescens	2	FACU+	Nt P-Grass	WOODLAND BROME
CXBLAN	1	Carex blanda	0	FAC	Nt P-Sedge	COMMON WOOD SEDGE
CXHIRT	5	Carex hirtifolia	5	UPL	Nt P-Sedge	HAIRY WOOD SEDGE
CXNORM	5	Carex normalis	0	[FAC]	Nt P-Sedge	SPREADING OVAL SEDGE
CXPENS	5	Carex pensylvanica	5	UPL	Nt P-Sedge	COMMON OAK SEDGE
CXRADI	6	Carex radiata	1	[FAC-]	Nt P-Sedge	STRAIGHT-STYLED WOOD SEDGE
CXROSE	4	Carex rosea	5	UPL	Nt P-Sedge	CURLY-STYLED WOOD SEDGE
CXSWAN	8	Carex swanii	3	FACU	Nt P-Sedge	DOWNY GREEN SEDGE
CXTRIB	3	Carex tribuloides	-4	FACW+	Nt P-Sedge	AWL-FRUITED OVAL SEDGE
CARCOR	7	Carya cordiformis	3	[FACU]	Nt Tree	BITTERNUT HICKORY
CAROVT	5	Carya ovata	3	FACU	Nt Tree	SHAGBARK HICKORY
CELORB	0	CELASTRUS ORBICULATUS	5	UPL	Ad W-Vine	ORIENTAL BITTERSWEET
CHEALB	0	CHENOPODIUM ALBUM	1	FAC-	Ad A-Forb	LAMB'S QUARTERS
CINARU	5	Cinna arundinacea	-3	FACW	Nt P-Grass	COMMON WOOD REED
CIRLUC	1	Circaea lutetiana canadensis	3	FACU	Nt P-Forb	ENCHANTER'S NIGHTSHADE
CLAVIR	2	Claytonia virginica	3	FACU	Nt P-Forb	SPRING BEAUTY
CORRAC	1	Cornus racemosa	-2	FACW-	Nt Shrub	GRAY DOGWOOD
CORAME	5	Corylus americana	4	FACU-	Nt Shrub	AMERICAN HAZELNUT
CRACOC	4	Crataegus coccinea	5	UPL	Nt Tree	SCARLET HAWTHORN
CRAPUN	2	Crataegus punctata	5	UPL	Nt Tree	DOTTED HAWTHORN
CRYCAN	2	Cryptotaenia canadensis	0	FAC	Nt P-Forb	HONEWORT
DACGLO	0	DACTYLIS GLOMERATA	3	FACU	Ad P-Grass	ORCHARD GRASS
DANSPI	3	Danthonia spicata	5	UPL	Nt P-Grass	POVERTY OAT GRASS
DENLAC	5	Dentaria laciniata	3	FACU	Nt P-Forb	TOOTHWORT

DESGLU	5	Desmodium glutinosum	5	UPL	Nt P-Forb	POINTED TICK TREFOIL
DICCUC	6	Dicentra cucullaria	5	UPL	Nt P-Forb	DUTCHMAN'S BREECHES
DRYSPI	8	Dryopteris spinulosa	-2	FACW-	Cryptogam	SPINULOSE SHIELD FERN
ECHCRU	0	Echinochloa crusgalli	-3	FACW	Nt A-Grass	BARNYARD GRASS
ELYVIL	5	Elymus villosus	3	FACU	Nt P-Grass	SILKY WILD RYE
ELYVIR	4	Elymus virginicus	-2	FACW-	Nt P-Grass	VIRGINIA WILD RYE
EREHIE	2	Erechtites hieracifolia	3	FACU	Nt A-Forb	FIREWEED
ERICAN	0	Erigeron canadensis	1	FAC-	Nt A-Forb	HORSEWEED
ERYALB	5	Erythronium albidum	5	UPL	Nt P-Forb	WHITE TROUT LILY
EUOALA	0	EUONYMUS ALATUS	5	UPL	Ad Shrub	BURNING BUSH
EUPSEM	0	Eupatorium serotinum	-1	FAC+	Nt P-Forb	LATE BONESET
FESOBT	5	Festuca obtusa	2	FACU+	Nt P-Grass	NODDING FESCUE
FRAVIR	1	Fragaria virginiana	1	FAC-	Nt P-Forb	WILD STRAWBERRY
FRAAMA	5	Fraxinus americana	3	FACU	Nt Tree	WHITE ASH
FRAAMB	9	Fraxinus americana biltmoreana	-3	[FACW]	Nt Tree	BILTMORE ASH
FRAPES	1	Fraxinus pennsylvanica subintegerrima	0	FAC	Nt Tree	GREEN ASH
GALAPA	1	Galium aparine	3	FACU	Nt A-Forb	ANNUAL BEDSTRAW
GALCIC	10	Galium circaezans	5	[UPL]	Nt P-Forb	SMOOTH WILD LICORICE
GALCON	5	Galium concinnum	5	[UPL]	Nt P-Forb	SHINING BEDSTRAW
GALTRF	5	Galium triflorum	2	FACU+	Nt P-Forb	SWEET-SCENTED BEDSTRAW
GERMAC	4	Geranium maculatum	5	[UPL]	Nt P-Forb	WILD GERANIUM
GEUCAN	1	Geum canadense	0	FAC	Nt P-Forb	WOOD AVENS
GLETRI	2	Gleditsia triacanthos	0	FAC	Nt Tree	HONEY LOCUST
GLYSTR	4	Glyceria striata	-3	[FACW]	Nt P-Grass	FOWL MANNA GRASS
HACVIR	0	Hackelia virginiana	1	FAC-	Nt B-Forb	STICKSEED
HELDIV	5	Helianthus divaricatus	5	UPL	Nt P-Forb	WOODLAND SUNFLOWER
HYDVIR	5	Hydrophyllum virginianum	0	[FAC]	Nt P-Forb	VIRGINIA WATERLEAF
HYPPUN	4	Hypericum punctatum	3	[FACU]	Nt P-Forb	SPOTTED ST. JOHN'S WORT
HYSPAT	5	Hystrix patula	5	UPL	Nt P-Grass	BOTTLEBRUSH GRASS
IMPCAP	3	Impatiens capensis	-3	FACW	Nt A-Forb	ORANGE JEWELWEED
JUNTEN	0	Juncus tenuis	2	[FACU+]	Nt P-Forb	PATH RUSH
LEEVIR	7	Leersia virginica	-3	FACW	Nt P-Grass	WHITE GRASS
LIGVUL	0	LIGUSTRUM VULGARE	1	FAC-	Ad Shrub	COMMON PRIVET
LOBINF	4	Lobelia inflata	4	FACU-	Nt A-Forb	INDIAN TOBACCO
LOBSIP	6	Lobelia siphilitica	-4	FACW+	Nt P-Forb	GREAT BLUE LOBELIA
LONDIO	10	Lonicera dioica	3	FACU	Nt W-Vine	RED HONEYSUCKLE
LONMAA	0	LONICERA MAACKII	5	UPL	Ad Shrub	AMUR HONEYSUCKLE
MACPOM	0	MACLURA POMIFERA	3	FACU	Ad Tree	OSAGE ORANGE
MALIOE	3	Malus ioensis	5	UPL	Nt Tree	IOWA CRAB
MORALB	0	MORUS ALBA	0	FAC	Ad Tree	WHITE MULBERRY
MUHSCH	0	Muhlenbergia schreberi	3	[FACU]	Nt P-Grass	NIMBLEWILL
ONOSEN	8	Onoclea sensibilis	-3	FACW	Cryptogam	SENSITIVE FERN
OSMCLO	3	Osmorhiza claytonii	4	FACU-	Nt P-Forb	HAIRY SWEET CICELY
OSMLON	3	Osmorhiza longistylis	4	FACU-	Nt P-Forb	SMOOTH SWEET CICELY
OXASTR	0	Oxalis stricta	5	UPL	Nt P-Forb	COMMON WOOD SORREL
PANLAT	5	Panicum latifolium	3	FACU	Nt P-Grass	BROAD-LEAVED PANIC GRASS
PARQUI	2	Parthenocissus quinquefolia	1	FAC-	Nt W-Vine	VIRGINIA CREEPER
PENSED	5	Penthorum sedoides	-5	OBL	Nt P-Forb	DITCH STONECROP
PHAARU	0	PHALARIS ARUNDINACEA	-4	FACW+	Ad P-Grass	REED CANARY GRASS
PHRLEP	4	Phryma leptostachya	5	UPL	Nt P-Forb	LOPSEED
PHYAME	1	Phytolacca americana	1	FAC-	Nt P-Forb	POKEWEED
PILPUM	5	Pilea pumila	-3	FACW	Nt A-Forb	CLEARWEED
POACOM	0	POA COMPRESSA	2	FACU+	Ad P-Grass	CANADA BLUE GRASS
PODPEL	4	Podophyllum peltatum	3	FACU	Nt P-Forb	MAY APPLE
POLREP	5	Polemonium reptans	0	FAC	Nt P-Forb	JACOB'S LADDER
POLCAL	3	Polygonatum canaliculatum	3	FACU	Nt P-Forb	SMOOTH SOLOMON'S SEAL
POLCEL	0	POLYGONUM CESPITOSUM LONGISETUM	5	UPL	Ad A-Forb	CREEPING SMARTWEED
POLPUN	6	Polygonum punctatum	-5	OBL	Nt A-Forb	SMARTWEED
POLGVI	2	Polygonum virginianum	0	FAC	Nt P-Forb	WOODLAND KNOTWEED
POPDEL	2	Populus deltoides	-1	FAC+	Nt Tree	EASTERN COTTONWOOD
POPGRA	6	Populus grandidentata	3	FACU	Nt Tree	LARGE-TOOTHED ASPEN
POTSIS	4	Potentilla simplex	4	FACU-	Nt P-Forb	COMMON CINQUEFOIL
PRUVLA	0	Prunella vulgaris lanceolata	3	[FACU]	Nt P-Forb	SELF HEAL
PRUSER	1	Prunus serotina	3	FACU	Nt Tree	WILD BLACK CHERRY
PRUVIR	3	Prunus virginiana	3	[FACU]	Nt Shrub	CHOKE CHERRY
PTETRM	8	Ptelea trifoliata mollis	5	[UPL]	Nt Shrub	DOWNY WAFER ASH
QUEALB	5	Quercus alba	0	FAC	Nt Tree	WHITE OAK
QUEBIC	6	Quercus bicolor	-4	FACW+	Nt Tree	SWAMP WHITE OAK
QUEIMB	7	Quercus imbricaria	1	FAC-	Nt Tree	SHINGLE OAK
QUEMAC	5	Quercus macrocarpa	1	FAC-	Nt Tree	BUR OAK
QUERUB	7	Quercus rubra	3	FACU	Nt Tree	RED OAK
RANABO	0	Ranunculus abortivus	-2	FACW-	Nt A-Forb	SMALL-FLOWERED BUTTERCUP
RANREC	5	Ranunculus recurvatus	-3	FACW	Nt A-Forb	HOOKED BUTTERCUP
RHACAT	0	RHAMNUS CATHARTICA	3	FACU	Ad Shrub	COMMON BUCKTHORN
RHURAD	2	Rhus radicans	-1	FAC+	Nt W-Vine	POISON IVY
RIBCYN	5	Ribes cynosbati	5	UPL	Nt Shrub	PRICKLY WILD GOOSEBERRY

ROSMUL	0	ROSA MULTIFLORA	3	FACU	Ad Shrub	MULTIFLORA ROSE
RUBOCC	2	Rubus occidentalis	5	UPL	Nt Shrub	BLACK RASPBERRY
RUBPEN	3	Rubus pensilvanicus	3	FACU	Nt Shrub	YANKEE BLACKBERRY
SALGLT	5	Salix X glatfelteri	-3	[FACW]	Nt Tree	HYBRID BLACK WILLOW
SAMCAN	1	Sambucus canadensis	-2	FACW-	Nt Shrub	ELDERBERRY
SANCAD	6	Sanguinaria canadensis	4	FACU-	Nt P-Forb	BLOODROOT
SANCAA	7	Sanicula canadensis	2	FACU+	Nt B-Forb	CANADIAN BLACK SNAKEROOT
SANGRE	2	Sanicula gregaria	-1	FAC+	Nt P-Forb	CLUSTERED BLACK SNAKEROOT
SILSTE	6	Silene stellata	5	UPL	Nt P-Forb	STARRY CAMPION
SMIRAC	3	Smilacina racemosa	3	FACU	Nt P-Forb	FEATHERY FALSE SOLOMON'S SEAL
SMITAH	5	Smilax tamnoides hispida	5	UPL	Nt W-Vine	BRISTLY CAT BRIER
SOLALT	1	Solidago altissima	3	FACU	Nt P-Forb	TALL GOLDENROD
SOLGIG	4	Solidago gigantea	-3	FACW	Nt P-Forb	LATE GOLDENROD
TAROFF	0	TARAXACUM OFFICINALE	3	FACU	Ad P-Forb	COMMON DANDELION
	0	TAXUS CUSPIDATA	4	FACU	Ad Tree	JAPANESE YEW
THADIO	7	Thalictrum dioicum	2	FACU+	Nt P-Forb	EARLY MEADOW RUE
TORJAP	0	TORILIS JAPONICA	5	UPL	Ad A-Forb	JAPANESE HEDGE PARSLEY
TRIREC	5	Trillium recurvatum	4	FACU-	Nt P-Forb	RED TRILLIUM
TRIPER	5	Triosteum perfoliatum	5	UPL	Nt P-Forb	LATE HORSE GENTIAN
ULMAME	3	Ulmus americana	-2	FACW-	Nt Tree	AMERICAN ELM
VERURU	5	Verbena urticifolia	5	UPL	Nt P-Forb	HAIRY WHITE VERVAIN
VIBLEN	5	Viburnum lentago	-1	FAC+	Nt Shrub	NANNYBERRY
VIBOPU	0	VIBURNUM OPULUS	3	[FACU]	Ad Shrub	EUROPEAN HIGHBUSH CRANBERRY
VIBPRU	5	Viburnum prunifolium	3	FACU	Nt Shrub	BLACK HAW
VIOPUB	5	Viola pubescens	4	FACU-	Nt P-Forb	YELLOW VIOLET
VIOSOR	3	Viola sororia	1	FAC-	Nt P-Forb	COMMON BLUE VIOLET
VITAES	7	Vitis aestivalis	3	FACU	Nt W-Vine	SUMMER GRAPE
VITRIP	2	Vitis riparia	-2	FACW-	Nt W-Vine	RIVERBANK GRAPE

Additional plants observed not identifiable to species:

Carex sp. (possibly C. gracillima)
Carex sp. (Section Ovales)
Carex sp.
Carya sp.
Celastrus sp.
Crataegus sp.
Geum sp.
Lactuca sp. (possibly L. biennis)
Lonicera sp.
Malus sp. (non-native)
Rubus sp.
Smilax sp. (herbaceous)
Vernonia sp.
Viola sp.
A member of the family Boraginaceae

Site: Illiana expressway corridor
Locale: Lake County, Indiana
Date: April 26, 2013 1.0 hours
April 30, 2013 1.0 hours
By: S. Namestnik, A. Lima, C. White, J. Sheets
File: r:\Projects\10\1012\1012012_IllianaExpressway2010\Data\Vegetation Surveys\Uplands\20130513_Mesic Prairie Inventory.inv
Notes: Decent Quality Mesic Prairie Inventory

FLORISTIC QUALITY DATA		Native			Adventive		
38	NATIVE SPECIES	Tree	0	0.0%	Tree	0	0.0%
57	Total Species	Shrub	4	7.0%	Shrub	1	1.8%
3.6	NATIVE MEAN C	W-Vine	0	0.0%	W-Vine	0	0.0%
2.4	W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
22.1	NATIVE FQI	P-Forb	23	40.4%	P-Forb	6	10.5%
18.0	W/Adventives	B-Forb	2	3.5%	B-Forb	7	12.3%
1.3	NATIVE MEAN W	A-Forb	3	5.3%	A-Forb	4	7.0%
1.7	W/Adventives	P-Grass	5	8.8%	P-Grass	1	1.8%
AVG:	Faculative (-)	A-Grass	0	0.0%	A-Grass	0	0.0%
		P-Sedge	0	0.0%	P-Sedge	0	0.0%
		A-Sedge	0	0.0%	A-Sedge	0	0.0%
		Cryptogam	1	1.8%			

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
ACHMIL	0	ACHILLEA MILLEFOLIUM	3	FACU	Ad P-Forb	YARROW
ALLPET	0	ALLIARIA PETIOLATA	0	FAC	Ad B-Forb	GARLIC MUSTARD
ALLCER	7	Allium cernuum	1	[FAC-]	Nt P-Forb	NODDING WILD ONION
AMBARE	0	Ambrosia artemisiifolia elatior	3	FACU	Nt A-Forb	COMMON RAGWEED
AMBTRI	0	Ambrosia trifida	-1	FAC+	Nt A-Forb	GIANT RAGWEED
ANDSCO	5	Andropogon scoparius	4	FACU-	Nt P-Grass	LITTLE BLUESTEM GRASS
ARCMIN	0	ARCTIUM MINUS	5	UPL	Ad B-Forb	COMMON BURDOCK
ASCSYR	0	Asclepias syriaca	5	UPL	Nt P-Forb	COMMON MILKWEED
ASTSIS	3	Aster simplex	-5	OBL	Nt P-Forb	PANICLED ASTER
BARVUL	0	BARBAREA VULGARIS	0	FAC	Ad B-Forb	YELLOW ROCKET
CIRARV	0	CIRSIUM ARVENSE	5	UPL	Ad P-Forb	FIELD THISTLE
CIRDIS	2	Cirsium discolor	5	UPL	Nt B-Forb	PASTURE THISTLE
COMUMB	7	Comandra umbellata	3	FACU	Nt P-Forb	FALSE TOADFLAX
CONMAC	0	CONIUM MACULATUM	-3	FACW	Ad B-Forb	POISON HEMLOCK
CONSEP	1	Convolvulus sepium	0	FAC	Nt P-Forb	HEDGE BINDWEED
CORRAC	1	Cornus racemosa	-2	FACW-	Nt Shrub	GRAY DOGWOOD
DAUCAR	0	DAUCUS CAROTA	5	UPL	Ad B-Forb	QUEEN ANNE'S LACE
DODMEA	6	Dodecatheon meadia	3	FACU	Nt P-Forb	SHOOTING STAR
ELYRIP	5	Elymus riparius	1	[FAC-]	Nt P-Grass	RIVERBANK WILD RYE
EQUHYE	3	Equisetum hyemale	-2	FACW-	Cryptogam	TALL SCOURING RUSH
FRAVIR	1	Fragaria virginiana	1	FAC-	Nt P-Forb	WILD STRAWBERRY
FROGRA	0	FROELICHIA GRACILIS	5	UPL	Ad A-Forb	SMALL COTTONWEED
GALAPA	1	Galium aparine	3	FACU	Nt A-Forb	ANNUAL BEDSTRAW
GEUCAN	1	Geum canadense	0	FAC	Nt P-Forb	WOOD AVENS
GEULAT	2	Geum laciniatum trichocarpum	-3	FACW	Nt P-Forb	ROUGH AVENS
HELGRO	2	Helianthus grosseserratus	-2	FACW-	Nt P-Forb	SAWTOOTH SUNFLOWER
HEURIC	8	Heuchera richardsonii	1	FAC-	Nt P-Forb	PRAIRIE ALUM ROOT
LAMPUR	0	LAMIUM PURPUREUM	5	UPL	Ad A-Forb	PURPLE DEAD NETTLE
LESCAP	4	Lespedeza capitata	3	FACU	Nt P-Forb	ROUND-HEADED BUSH CLOVER
LYCALB	0	LYCHNIS ALBA	5	UPL	Ad A-Forb	WHITE CAMPION
MONFIS	4	Monarda fistulosa	3	FACU	Nt P-Forb	WILD BERGAMOT
OENBIE	0	Oenothera biennis	3	FACU	Nt B-Forb	COMMON EVENING PRIMROSE
OENPIL	10	Oenothera pilosella	1	FAC-	Nt P-Forb	PRAIRIE SUNDROPS
PANVIR	5	Panicum virgatum	-1	FAC+	Nt P-Grass	SWITCH GRASS
PASSAT	0	PASTINACA SATIVA	5	UPL	Ad B-Forb	WILD PARSNIP
PHLPIP	7	Phlox pilosa	1	FAC-	Nt P-Forb	SAND PRAIRIE PHLOX
POAPRA	0	POA PRATENSIS	1	FAC-	Ad P-Grass	KENTUCKY BLUE GRASS
RATPIN	4	Ratibida pinnata	5	UPL	Nt P-Forb	YELLOW CONEFLOWER
ROSCAR	5	Rosa carolina	4	FACU-	Nt Shrub	PASTURE ROSE
ROSMUL	0	ROSA MULTIFLORA	3	FACU	Ad Shrub	MULTIFLORA ROSE
RUBOCC	2	Rubus occidentalis	5	UPL	Nt Shrub	BLACK RASPBERRY
RUMCRI	0	RUMEX CRISPUS	-1	FAC+	Ad P-Forb	CURLY DOCK
SAMCAN	1	Sambucus canadensis	-2	FACW-	Nt Shrub	ELDERBERRY
SAPOFF	0	SAPONARIA OFFICINALIS	3	FACU	Ad P-Forb	BOUNCING BET
SENGLA	0	SENECIO GLABELLUS	0	[FAC]	Ad A-Forb	BUTTERWEED
SILINI	5	Silphium integrifolium	5	UPL	Nt P-Forb	ROSIN WEED
SILTER	5	Silphium terebinthinaceum	3	FACU	Nt P-Forb	PRAIRIE DOCK
SOLALT	1	Solidago altissima	3	FACU	Nt P-Forb	TALL GOLDENROD
SORNUT	5	Sorghastrum nutans	2	FACU+	Nt P-Grass	INDIAN GRASS
SPAPEC	4	Spartina pectinata	-4	FACW+	Nt P-Grass	PRAIRIE CORD GRASS
TAROFF	0	TARAXACUM OFFICINALE	3	FACU	Ad P-Forb	COMMON DANDELION
TRAOHI	2	Tradescantia ohiensis	2	FACU+	Nt P-Forb	COMMON SPIDERWORT

TRIHYB	0	TRIFOLIUM HYBRIDUM	1	FAC-	Ad P-Forb	ALSIKE CLOVER
VERTHA	0	VERBASCUM THAPSUS	5	UPL	Ad B-Forb	COMMON MULLEIN
VERVIR	7	Veronicastrum virginicum	0	FAC	Nt P-Forb	CULVER'S ROOT
VIOSOR	3	Viola sororia	1	FAC-	Nt P-Forb	COMMON BLUE VIOLET
ZIZAUR	7	Zizia aurea	-1	FAC+	Nt P-Forb	GOLDEN ALEXANDERS

Additional plants observed not identifiable to species:
Aster sp.
Carex spp.
Galium sp.
Hypericum sp.
Lonicera sp.
Malus sp.
Panicum sp.
Sanicula sp.
Solidago sp.

Site: Illiana Expressway Corridor
Locale: Lake County, Indiana
Date: September 19, 2012 3 hours
By: S. Namestnik, A. Lima
File: r:\Projects\10\1012\1012012_IllianaExpressway2010\Data\Vegetation Surveys\Uplands\20130219_prairie remnant inventory.inv
Notes: Dry-mesic prairie remnant inventory

FLORISTIC QUALITY DATA		Native			Adventive		
70	NATIVE SPECIES	Tree	5	5.2%	Tree	1	1.0%
97	Total Species	Shrub	5	5.2%	Shrub	2	2.1%
4.1	NATIVE MEAN C	W-Vine	3	3.1%	W-Vine	0	0.0%
2.9	W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
34.1	NATIVE FQI	P-Forb	40	41.2%	P-Forb	12	12.4%
28.9	W/Adventives	B-Forb	4	4.1%	B-Forb	2	2.1%
2.4	NATIVE MEAN W	A-Forb	5	5.2%	A-Forb	1	1.0%
2.6	W/Adventives	P-Grass	4	4.1%	P-Grass	6	6.2%
AVG: Fac. Upland (+)		A-Grass	1	1.0%	A-Grass	3	3.1%
		P-Sedge	2	2.1%	P-Sedge	0	0.0%
		A-Sedge	0	0.0%	A-Sedge	0	0.0%
		Cryptogam	1	1.0%			

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
ACESAI	0	Acer saccharinum	-3	FACW	Nt Tree	SILVER MAPLE
ACHMIL	0	ACHILLEA MILLEFOLIUM	3	FACU	Ad P-Forb	YARROW
AGATEN	7	Agalinis tenuifolia	-3	FACW	Nt A-Forb	SLENDER FALSE FOXGLOVE
AGRPAR	7	Agrimonia parviflora	-1	FAC+	Nt P-Forb	SWAMP AGRIMONY
AGRROS	10	Agrimonia rostellata	3	FACU	Nt P-Forb	BEAKED AGRIMONY
AGRALA	0	AGROSTIS ALBA	-3	FACW	Ad P-Grass	REDTOP
AMBARE	0	Ambrosia artemisiifolia elatior	3	FACU	Nt A-Forb	COMMON RAGWEED
ANDSCO	5	Andropogon scoparius	4	FACU-	Nt P-Grass	LITTLE BLUESTEM GRASS
ANDVIR	0	ANDROPOGON VIRGINICUS	1	FAC-	Ad P-Grass	BROOM SEDGE
ANTPLA	3	Antennaria plantaginifolia	5	UPL	Nt P-Forb	PUSSY TOES
APOCAN	4	Apocynum cannabinum	0	FAC	Nt P-Forb	INDIAN HEMP
ARIOLI	0	Aristida oligantha	5	UPL	Nt A-Grass	PLAINS THREE-AWN GRASS
ASCSYR	0	Asclepias syriaca	5	UPL	Nt P-Forb	COMMON MILKWEED
ASCVIR	10	Asclepias viridiflora	5	UPL	Nt P-Forb	SHORT GREEN MILKWEED
ASTERI	5	Aster ericoides	4	FACU-	Nt P-Forb	HEATH ASTER
ASTLAE	9	Aster laevis	5	UPL	Nt P-Forb	SMOOTH BLUE ASTER
ASTNOV	4	Aster novae-angliae	-3	FACW	Nt P-Forb	NEW ENGLAND ASTER
ASTPIL	0	Aster pilosus	2	FACU+	Nt P-Forb	HAIRY ASTER
ASTPRA	9	Aster praealtus	-5	[OBL]	Nt P-Forb	WILLOW ASTER
CXBLAN	1	Carex blanda	0	FAC	Nt P-Sedge	COMMON WOOD SEDGE
CXSWAN	8	Carex swanii	3	FACU	Nt P-Sedge	DOWNY GREEN SEDGE
CASFAS	5	Cassia fasciculata	4	FACU-	Nt A-Forb	PARTRIDGE PEA
CEAAME	6	Ceanothus americanus	5	UPL	Nt Shrub	NEW JERSEY TEA
CHRLEP	0	CHRYSANTHEMUM LEUCANTHEMUM PINNATIFIDUM	5	UPL	Ad P-Forb	OX-EYE DAISY
CICINT	0	CICHORIUM INTYBUS	5	UPL	Ad P-Forb	CHICORY
CIRDIS	2	Cirsium discolor	5	UPL	Nt B-Forb	PASTURE THISTLE
CIRVUL	0	CIRSIUM VULGARE	4	FACU-	Ad B-Forb	BULL THISTLE
CORTRP	5	Coreopsis tripteris	0	FAC	Nt P-Forb	TALL COREOPSIS
CORRAC	1	Cornus racemosa	-2	FACW-	Nt Shrub	GRAY DOGWOOD
CORAME	5	Corylus americana	4	FACU-	Nt Shrub	AMERICAN HAZELNUT
DACGLO	0	DACTYLIS GLOMERATA	3	FACU	Ad P-Grass	ORCHARD GRASS
DANSPI	3	Danthonia spicata	5	UPL	Nt P-Grass	POVERTY OAT GRASS
DAUCAR	0	DAUCUS CAROTA	5	UPL	Ad B-Forb	QUEEN ANNE'S LACE
DIAARM	0	DIANTHUS ARMERIA	5	UPL	Ad A-Forb	DEPTFORD PINK
DIGISC	0	DIGITARIA ISCHAEMUM	3	FACU	Ad A-Grass	SMOOTH CRAB GRASS
ELAUMB	0	ELAEAGNUS UMBELLATA	5	UPL	Ad Shrub	AUTUMN OLIVE
ERISTR	5	Erigeron strigosus	5	[UPL]	Nt B-Forb	DAISY FLEABANE
ERYYUC	9	Eryngium yuccifolium	-1	FAC+	Nt P-Forb	RATTLESNAKE MASTER
EUPALT	0	Eupatorium altissimum	3	[FACU]	Nt P-Forb	TALL BONESET
EUPRUG	4	Eupatorium rugosum	5	UPL	Nt P-Forb	WHITE SNAKEROOT
EUPCOR	2	Euphorbia corollata	5	UPL	Nt P-Forb	FLOWERING SPURGE
FESELA	0	FESTUCA ELATIOR	2	FACU+	Ad P-Grass	TALL FESCUE
FRAVIR	1	Fragaria virginiana	1	FAC-	Nt P-Forb	WILD STRAWBERRY
GNAOBT	2	Gnaphalium obtusifolium	5	UPL	Nt A-Forb	OLD-FIELD BALSAM
HIECAE	0	HIERACIUM CAESPITOSUM	5	UPL	Ad P-Forb	FIELD HAWKWEED
HYPPER	0	HYPERICUM PERFORATUM	5	UPL	Ad P-Forb	COMMON ST. JOHN'S WORT
JUGNIG	5	Juglans nigra	3	FACU	Nt Tree	BLACK WALNUT
JUNVIC	2	Juniperus virginiana crebra	3	FACU	Nt Tree	RED CEDAR
LACCAN	2	Lactuca canadensis	2	FACU+	Nt B-Forb	WILD LETTUCE
LESCAP	4	Lespedeza capitata	3	FACU	Nt P-Forb	ROUND-HEADED BUSH CLOVER
LESCUN	0	LESPEDEZA CUNEATA	5	UPL	Ad P-Forb	SILKY BUSH CLOVER
LIAASP	6	Liatris aspera	5	UPL	Nt P-Forb	ROUGH BLAZING STAR
LIASCN	5	Liatris scariosa nieuwlandii	5	[UPL]	Nt P-Forb	SAVANNA BLAZING STAR

LOBSPS	6	Lobelia spicata	0	FAC	Nt P-Forb	PALE SPIKED LOBELIA
LYCCOF	8	Lycopodium complanatum flabelliforme	2	FACU+	Cryptogam	TRAILING GROUND PINE
LYSLAN	7	Lysimachia lanceolata	0	FAC	Nt P-Forb	LANCE-LEAVED LOOSESTRIFE
MONFIS	4	Monarda fistulosa	3	FACU	Nt P-Forb	WILD BERGAMOT
OENBIE	0	Oenothera biennis	3	FACU	Nt B-Forb	COMMON EVENING PRIMROSE
OXASTR	0	Oxalis stricta	5	UPL	Nt P-Forb	COMMON WOOD SORREL
PANIMP	2	Panicum implicatum	1	FAC-	Nt P-Grass	OLD-FIELD PANIC GRASS
PARINT	8	Parthenium integrifolium	5	UPL	Nt P-Forb	WILD QUININE
PARQUI	2	Parthenocissus quinquefolia	1	FAC-	Nt W-Vine	VIRGINIA CREEPER
PETPUR	9	Petalostemum purpureum	5	UPL	Nt P-Forb	PURPLE PRAIRIE CLOVER
PHLPRA	0	PHLEUM PRATENSE	3	FACU	Ad P-Grass	TIMOTHY
PHYHET	3	Physalis heterophylla	5	UPL	Nt P-Forb	CLAMMY GROUND CHERRY
PLALAN	0	PLANTAGO LANCEOLATA	0	FAC	Ad P-Forb	ENGLISH PLANTAIN
PLAMAJ	0	PLANTAGO MAJOR	-1	FAC+	Ad P-Forb	COMMON PLANTAIN
POACOM	0	POA COMPRESSA	2	FACU+	Ad P-Grass	CANADA BLUE GRASS
POLSAN	6	Polygala sanguinea	3	FACU	Nt A-Forb	FIELD MILKWORT
POTREC	0	POTENTILLA RECTA	5	UPL	Ad P-Forb	UPRIGHT CINQUEFOIL
POTSIS	4	Potentilla simplex	4	FACU-	Nt P-Forb	COMMON CINQUEFOIL
PRUVLA	0	Prunella vulgaris lanceolata	3	[FACU]	Nt P-Forb	SELF HEAL
PRUSER	1	Prunus serotina	3	FACU	Nt Tree	WILD BLACK CHERRY
PYRCAL	0	PYRUS CALLERYANA	5	UPL	Ad Tree	ORNAMENTAL PEAR
QUEIMB	7	Quercus imbricaria	1	FAC-	Nt Tree	SHINGLE OAK
RATPIN	4	Ratibida pinnata	5	UPL	Nt P-Forb	YELLOW CONEFLOWER
RHUGLA	1	Rhus glabra	5	UPL	Nt Shrub	SMOOTH SUMAC
RHURAD	2	Rhus radicans	-1	FAC+	Nt W-Vine	POISON IVY
ROSMUL	0	ROSA MULTIFLORA	3	FACU	Ad Shrub	MULTIFLORA ROSE
ROSSET	7	Rosa setigera	2	FACU+	Nt Shrub	ILLINOIS ROSE
RUDHIR	1	Rudbeckia hirta	3	FACU	Nt P-Forb	BLACK-EYED SUSAN
RUMACE	0	RUMEX ACETOSELLA	3	[FACU]	Ad P-Forb	FIELD SORREL
SETFAB	0	SETARIA FABERI	2	FACU+	Ad A-Grass	GIANT FOXTAIL
SETGLA	0	SETARIA GLAUCA	0	FAC	Ad A-Grass	YELLOW FOXTAIL
SILTER	5	Silphium terebinthinaceum	3	FACU	Nt P-Forb	PRAIRIE DOCK
SOLALT	1	Solidago altissima	3	FACU	Nt P-Forb	TALL GOLDENROD
SOLGIG	4	Solidago gigantea	-3	FACW	Nt P-Forb	LATE GOLDENROD
SOLGRN	3	Solidago graminifolia nuttallii	0	[FAC]	Nt P-Forb	HAIRY GRASS-LEAVED GOLDENROD
SOLJUN	5	Solidago juncea	5	UPL	Nt P-Forb	EARLY GOLDENROD
SOLNEM	4	Solidago nemoralis	5	UPL	Nt P-Forb	OLD-FIELD GOLDENROD
SOLRIG	4	Solidago rigida	4	FACU-	Nt P-Forb	STIFF GOLDENROD
SORNUT	5	Sorghastrum nutans	2	FACU+	Nt P-Grass	INDIAN GRASS
SPICER	7	Spiranthes cernua	-2	FACW-	Nt P-Forb	NODDING LADIES' TRESSES
TAROFF	0	TARAXACUM OFFICINALE	3	FACU	Ad P-Forb	COMMON DANDELION
TRIPRA	0	TRIFOLIUM PRATENSE	5	UPL	Ad P-Forb	RED CLOVER
VIOSAG	7	Viola sagittata	-2	FACW-	Nt P-Forb	ARROW-LEAVED VIOLET
VITRIP	2	Vitis riparia	-2	FACW-	Nt W-Vine	RIVERBANK GRAPE

Additional plants observed not identifiable to species:

Carex sp.
Desmodium spp.
Melilotus sp.